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THE IRON AGE

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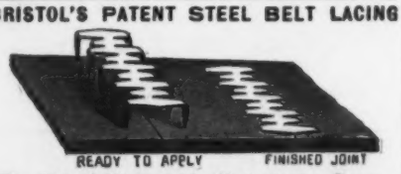

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See our ad on page 19

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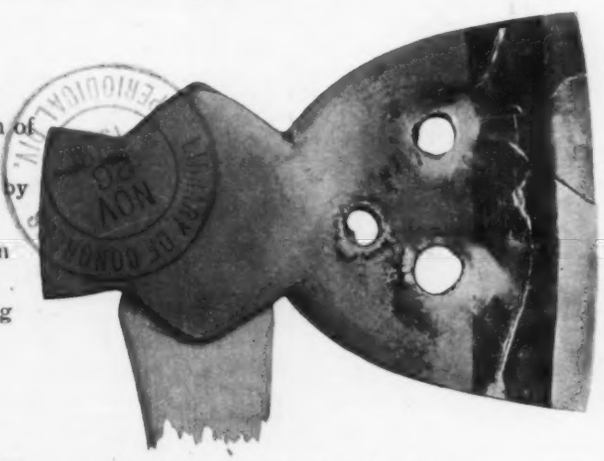

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See page 56

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The use for more than a quarter century of these particular nails has given ample opportunity to the horse-shoers of the country to prove their excellence.

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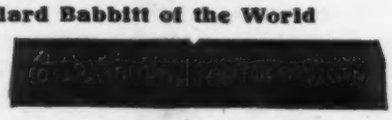

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THE IRON AGE

New York, Thursday, November 25, 1909.

The New York State Steel Company's Plant.

Noteworthy Features of Construction and Equipment of Blast Furnace and Talbot Open Hearth Steel Works.

The New York State Steel Company's open hearth steel plant at Buffalo, N. Y., is the outgrowth of the belief of Spencer Kellogg and other Buffalo capitalists that Buffalo has special advantages as an iron and steel manufacturing and distributing point. Interested originally in a project for a bridge and structural works, Mr. Kellogg and his associates took up the larger undertaking, the result thus far being a blast furnace and steel plant, based on holdings in Lake Superior Iron ore properties. The present New York State Steel Company interests, who succeeded the original builders in the control of the property, contemplate further expansion, or, rather, the carrying out of the first plans, which called for a second blast furnace and three additional Talbot open hearth furnaces, making five in all, with the addition of various finishing mills. The decision to build a Talbot plant was in view of the rapidly increasing demand for open hearth steel and the consequent scarcity of the scrap ordinarily employed in its manufacture. It is the directness with which open hearth steel production from ore has been worked out that gives special interest to this plant, which was designed and built under the supervision of the Garrett-Cromwell Engineering Company, Cleveland, Ohio. A number of new ideas are embodied in the construction, these including the blast furnace top filling arrangement, the location of the mixer so that metal runs directly into it from the blast furnace, several of the features of the open hearth charging arrangements, and the combination ingot stripping and charging cranes in the pit furnace building.

Ore Handling.

The steel plant site consists of 70 acres on the Buffalo River, south of the city proper, about a mile in a direct line from Lake Erie. However, the tortuous course of the river, involving four or five long loops between the lake and the steel plant site, makes the distance to be traversed by boats considerably longer. At present ore is being unloaded on the B., R. & P. R. R. docks on the navigable part of the river and is there loaded into cars for transfer to the furnace yard. Dredging contracts have been let for the deepening of the river to a 22-ft. channel beyond the steel company's site, and it is expected the work will be finished in two years. There is also some work to be done in widening the stream at some of the turns, reducing their sharpness and shortening the course. Three railroad bridges must be converted into swing bridges also, and this, like some other municipal improvements, has encountered delay. The ore dock of the New York State Steel Company, as shown in Fig. 1, is what it will be after contemplated changes have been made in the course of the river at this point. The ore yard will be 1000 ft. long and will have ample capacity for serving two blast furnaces.

Construction work was begun late in 1905, the steel plant being built first, and work on it being well advanced before the blast furnace was undertaken. The first steel was made in April, 1907. The blast furnace was blown in in July, 1909. Its capacity is about 450 tons in 24 hours.

In addition to the water transportation facilities which the plant will have eventually, direct connections are made with the Delaware, Lackawanna & Western Railroad and the Buffalo, Rochester & Pittsburgh Railroad. Fig. 1 shows the railroad track arrangement and the trestle over which ore is brought to the bins. There are 10 ore bins, each with a capacity of 183 tons, and the 10 coke bins have a capacity of 51 tons each. The bins were built by the Brown Hoisting Machinery Company, Cleveland, Ohio, and are of this company's double suspension parabolic type, discharging ore, coke and limestone directly into an electrically operated larry car. Thus far but one ore bridge has been erected. It was furnished by the Brown Hoisting Machinery Company and handles a 5-ton grab bucket. The ore as it is brought in by train is dumped alongside the trestle and from the piles thus formed is picked up by the bridge bucket. When the position of the bridge is such that this can be done ore may be dropped into the bins by the grab bucket, but for the most part the bucket loads ore into a larry car, which travels from any position of the bridge to the bins containing the various kinds of ore.

The Blast Furnace.

The blast furnace is 21 ft. in diameter at the bosh, 14 ft. at the stock line and 13 ft. 9 in. at the hearth. The hight is 85 ft. The furnace is blown through 12 tuyeres. There are four 21-ft. Massicks & Crooke stoves 105 ft. high. The furnace is fed by a double skip, which differs from the ordinary arrangement in that the pockets travel one over the other, instead of side by side. Each skip carries a suspended tub, which receives its load from an electrically operated larry car and discharges it when in a central position at the top of the furnace. The discharge position of the bucket is shown in the sectional views of the furnace top in Fig. 2. The discharge of ore is accomplished without any mechanism at the top of the furnace. The position of the operator is near the foot of the incline, where he has in direct view the dropping into the bucket of the ore, coke and stone from the larry car running under the bins. The skip is operated by an Otis electric hoist, located on the opposite side of the furnace from the operator. In Fig. 2 the construction of the ore bucket is well shown and the method by which the bell forming its bottom is lowered when the bucket is seated on the top of the hopper. The curved top of the latter and the bucket bell are thus depressed together and after the bucket has been emptied the counterweight shown returns the upper seal to its place. The deflecting plates in the upper portion of the hopper serve to secure a proper distribution of the ore as it falls upon the bell. Unlike the average modern skip filled furnace, it will be seen that this one has but one bell.

The car which carries the loaded bucket stops in its highest position when the bell in the bottom of the bucket is at its lowest position, as shown by the dotted lines. When the stock has run out the car returns to the lower position shown and the upper seal closes so that the furnace bell may be lowered at any time. With the top car in this position the other car at the bottom of the hoist is in position for loading. All of this operation is automatic. The Otis hoist is stopped by an electric cut-out and the brake applied when the car is in its highest position. The hoist also has a time limit mechanism which holds it in this position long enough for the stock to run out. The hoist is then automatically reversed, the car lowered into the position shown in Fig. 2, and the

brake automatically applied. The car remains in this position until the other car is loaded at the bottom, when the hoist is started by the operator. The usual chemical indicators in the operator's house show when the bells are lowered. The hight of the stock in the furnace is also indicated. It is to be noted that in the four months

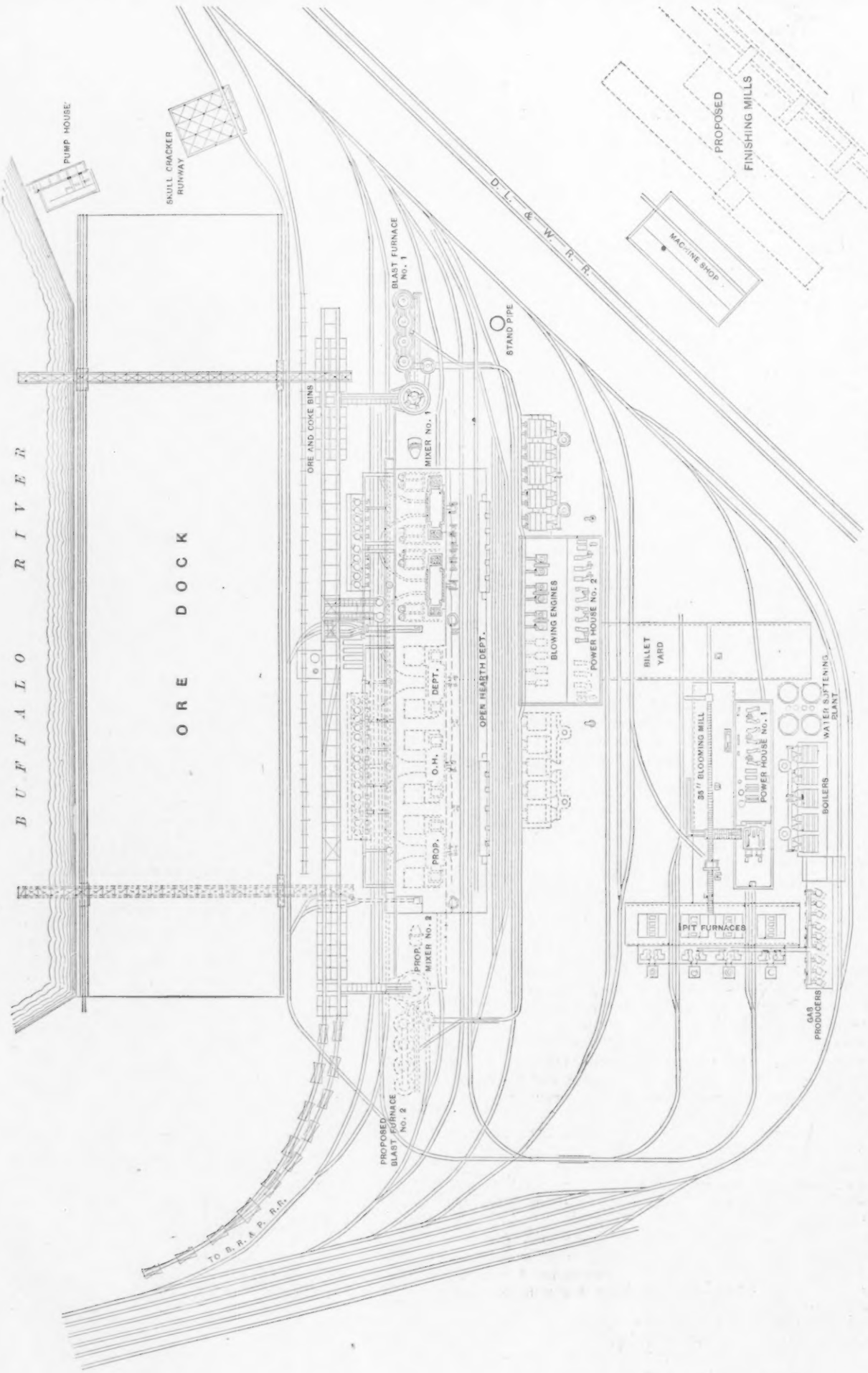


Fig. 1.—Plan of New York State Steel Company's plant at Buffalo, N. Y. Projected Blast Furnace, Open Hearth Furnaces, Finishing Mills, &c., Shown in Dotted Lines.

the furnace has been operated no differences have been observed in the hight of stock at the four points around the top chosen for indication.

The blast furnace blowing equipment consists of three cross compound steeple type engines each 48 and 84 in. by 84 and 60 in., built by the Southwark Foundry & Machine Company of Philadelphia. There are 10 400-hp. Stirling boilers, which are fired by blast furnace gas. Provision has been made for handling the blast furnace slag, either by running it into a granulating tank from which it is loaded by gravity into railroad cars, or running it direct into cinder cars in the molten state.

The Mixer.

The blast furnace, mixer and open hearth furnaces are located in one building. The proximity of the mixer to the furnace, so that metal runs into it directly from the latter, is a noteworthy feature of this plant. The plan and sectional views in Fig. 3 show the arrangement of runways leading to the mixer and to the ladle cars which carry the metal when desired to the pig casting machine. This latter procedure is only in case of an interruption to operations in the open hearth department or for excess or merchant iron.

The mixer is of the converter type, and the method of tilting it is shown in Fig. 4. There are two 25-hp. Crocker-Wheeler motors carried upon the column which raise and lower the mixer. Both motors have worms on the extensions of their armature shafts, gearing into worm wheels on opposite sides. The worm wheel is keyed to the long sleeve extending downward, and it turns the steel screw which works in a bronze nut bolted at the bottom to the ram connected by a universal joint to the mixer. This ram slides in the outer sleeve, which is brass lined. The thrust of the screw is taken up at the bottom by a series of collars working in babbitt.

The Talbot Open Hearth Furnaces.

A 40-ton ladle crane commanding the charging floor of the open hearth building and cast house carries the metal from the mixer to the Talbot furnaces. A refractory lined cast iron runway is inserted in the door of the furnace for the pouring of hot metal from the ladle.

The open hearth plant consists of two 200-ton Talbot tilting furnaces, each being 53 ft. long and 16 ft. wide in the tilting section. As shown in Fig. 5, each furnace is supported upon four large wheels which run upon a circular track, thereby tilting the furnace without disturbing the center of its ports. The tilting of the furnace is accomplished by means of motors supported directly upon it. The rack and all gearing for tilting the furnace are steel castings. No hydraulic pressure is employed in connection with these furnaces, everything being electrically operated, including the reversing of the valves and the opening of the doors. The door hoisting mechanism is shown in Fig. 6. Each door has an independent hoist operated by a type K Westinghouse motor suspended below the gear frame, driving a worm by a pinion and gear. The crank for lifting the doors is keyed to the extension of the worm shaft.

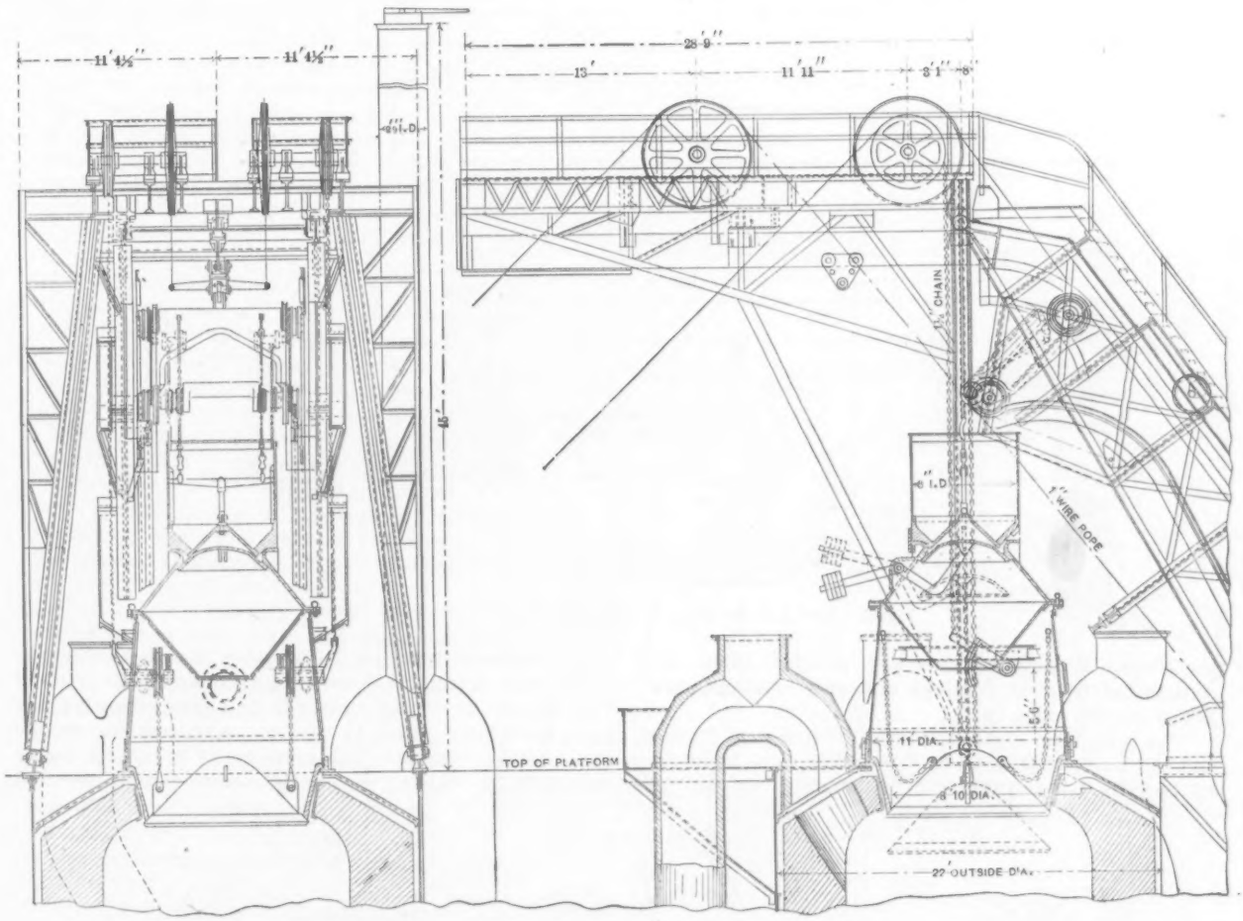


Fig. 2.—Sectional Views Showing Top Construction and the Bucket Method of Charging Without Machinery at the Top.

As the plan shows, gas producers were installed and for a time producer gas was used. However, oil is now the fuel employed. It is stored in tanks adjoining the open hearth building, and is introduced through the usual piping to the ports of the furnaces. The ore, mill scale and burnt limestone required in the open hearth charge are brought up to the open hearth charging floor by an electric incline hoist at right angles to the line of the furnace. The limestone is burned in kilns located close to the open hearth building. Ore is loaded into the boxes from bins in that part of the ore trestle nearest the open hearth furnaces, these bins being filled by larry car in the same way as those carrying ore for the blast furnaces.

A Rotary Charging Machine.

The cars of filled charging boxes, after being pulled up the incline, stand on a track at the end of the open hearth building, while the boxes are picked off by the charging machine. This machine is of a special type, with rotating trolley, as shown in Fig. 7, so that the charging boxes can be picked up and swung around 90 degrees to the furnace doors. This charger was built by

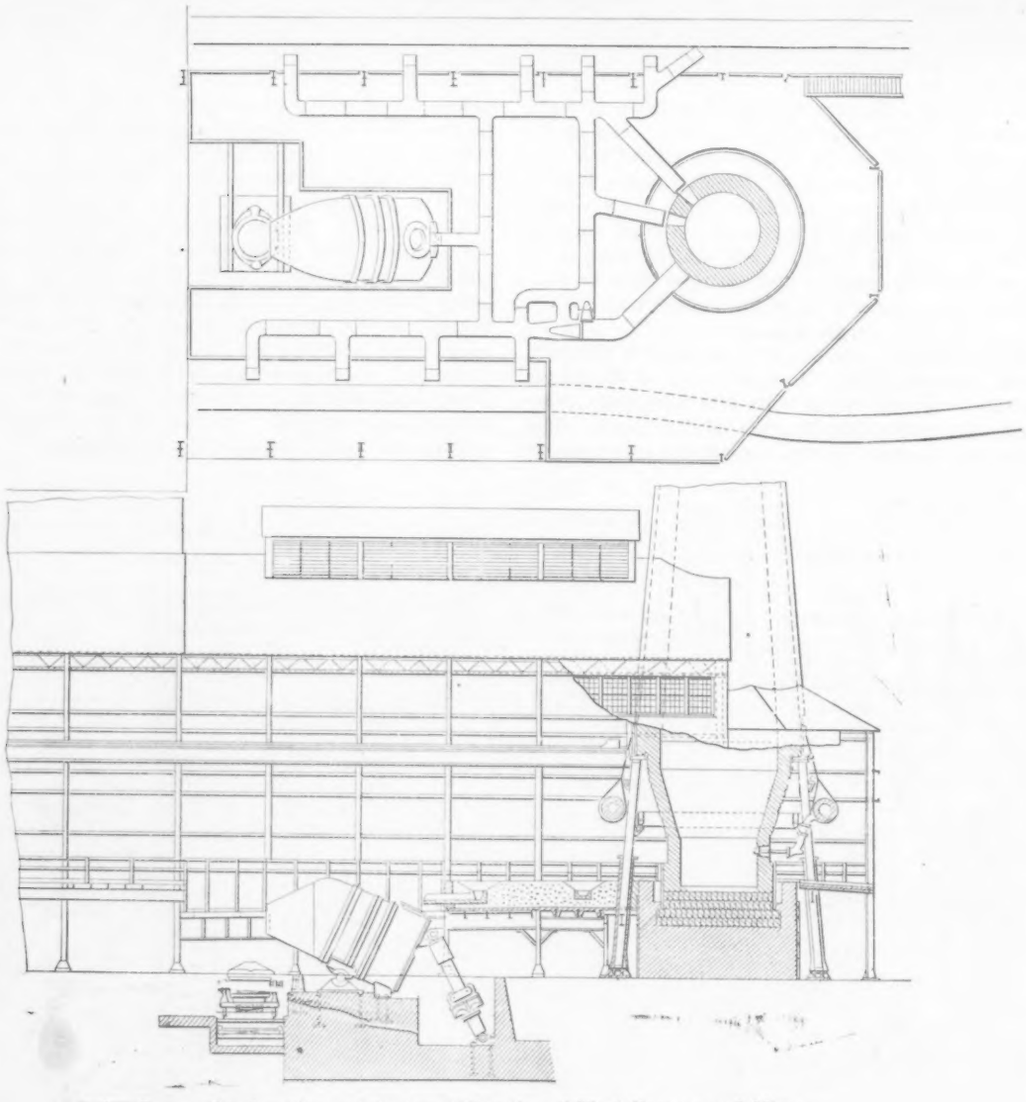


Fig. 3.—Plan and Sectional Elevation of Blast Furnace and Mixer.

the Morgan Engineering Company, Alliance, Ohio. It is constructed of steel forgings and steel castings, practically no iron being used.

The span from center to center of rails is 34 ft. 6 in., and the wheel base is 16 ft. ½ in. The total hight over all is 8 ft. 6 in. There are five electric motors. The main traverse motor is 50 hp.; the lifting trolley traverse and charging bar rotating motors each 30 hp., and the trolley revolving motor 11 hp. The charging bar can be rotated about 12 rev. per min., and the trolley about 3 rev. per min. The armature of the lifting motor is provided with an automatic electric brake operated

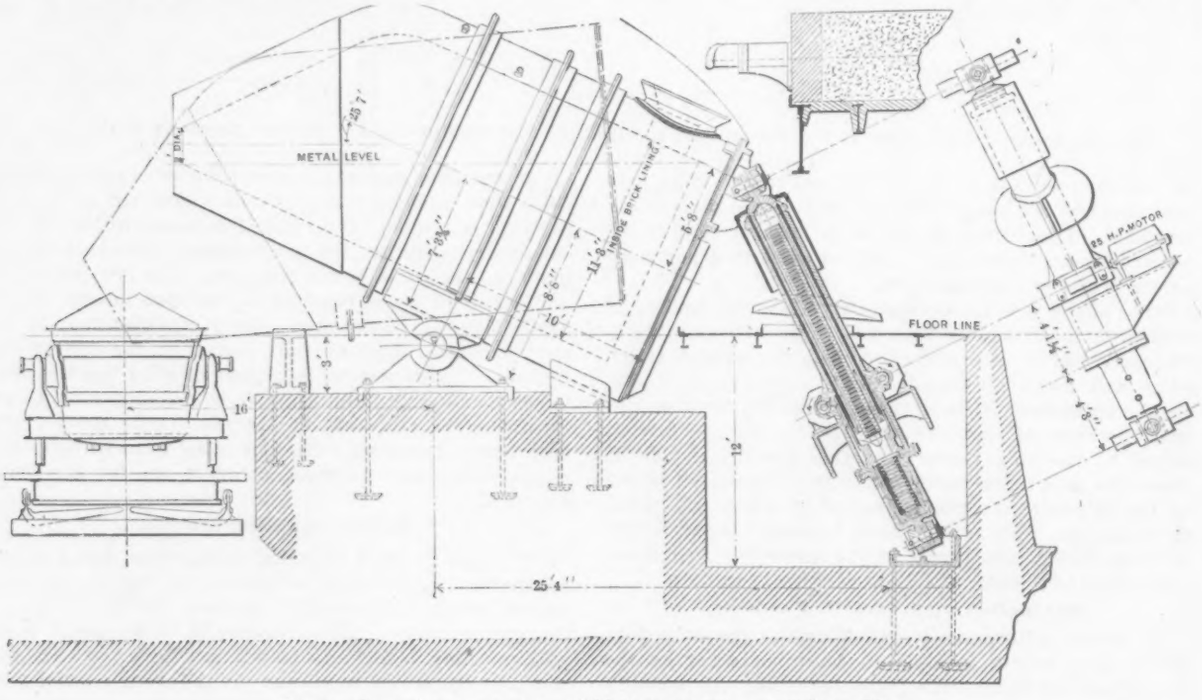


Fig. 4.—General Arrangement and Method of Tilting of 250-Ton Mixer.

by solenoids in such a manner that should the current fail from any cause the brake will immediately act and prevent the load from falling.

To the top section of the trolley frame, which revolves on ball bearings, is attached the charging bar. This is made in two pieces, allowing the front part to be renewed in case of accidents. The front end of the charging bar is made to fit into a recess on the back of the charging boxes. Its head is provided with two double inclined faces. These are exactly duplicate, with their meeting edge on line with the center of the charging bar. If, after the lower end of the charging bar has entered the pocket, the box should not be in the exact position to permit of the free seating of the head therein, the inclined faces on the bar head and on the pocket coming together will cause the box to shift its position to receive the head. The flanged end of the charging bar having double inclines and the sliding lock being located in plane with the center of the bar, it can thus be used either side down, and if one side is damaged the other can be used. To lock the boxes to the charging bar the locking rod is pulled back toward the operator, thus putting this rod in tension. As the operator can always see whether the box is secure, it is held that this design of box reduces the number of lost boxes to a minimum.

The practice at the Buffalo plant has been the typical Talbot practice, and the results have been quite uniform, each of the furnaces producing 200 tons in 24 hours, this amount having been exceeded in a number of instances. About 50 tons of metal is tapped out at each cast. The reserve metal being very low in carbon (about 0.04 per cent.), the addition of a fresh pot of metal from the mixer is attended with a violent ebullition, the product of the reaction. These additions vary from 25,000 to 40,000 lb., depending upon the kind of steel desired. The maintenance of a limy slag of good depth and of a freely oxidizing slag (by the charging of iron ore and scale, or both) is the condition of speedy and satisfactory refining.

On the pouring side of the furnace the ladles of metal are handled by a 75-ton four-girder crane built by the Alliance Machine Company, Alliance, Ohio.

The Blooming Mill.

The blooming mill is 36 in. in diameter and was built by the United Engineering & Foundry Company, Pittsburgh. It is operated by a pair of 48 x 60 in. reversing engines built by Mackintosh, Hemphill & Co., Pittsburgh. There are three four-hole soaking pits, which are served by two Alliance Machine Company combined stripping and charging machines, one of which is shown in Fig. 8. The ingots after they leave the open hearth furnaces are switched directly into the soaking pit building and are there stripped and handled direct into the pits without any further movement of the cars, in contrast with the frequent instances of such an arrangement of plant as calls for the hauling of ingots to a stripper and then their transfer to a soaking pit building.

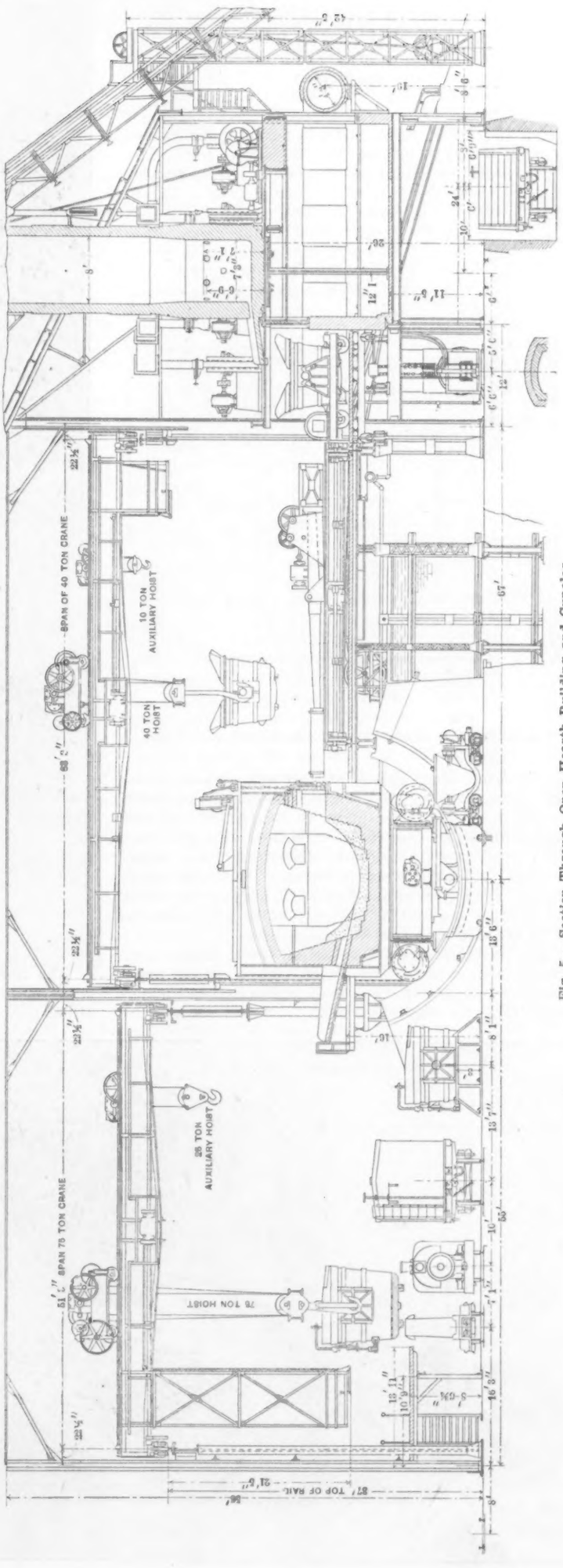


Fig. 5.—Section Through Open Hearth Building and Cupolas.

The combined stripping and charging machines remove the ingots from the pits and place them upon the ingot tilter, from which they go direct to the mill. For the pit furnaces there are nine standard Duff gas producers 10 ft. 6 in. in diameter.

The billet shear, which is motor driven, is capable of cutting steel 11 x 11 in. It was built by Mackintosh, Hemphill & Co., Pittsburgh.

The boiler equipment for the rolling mill end of the

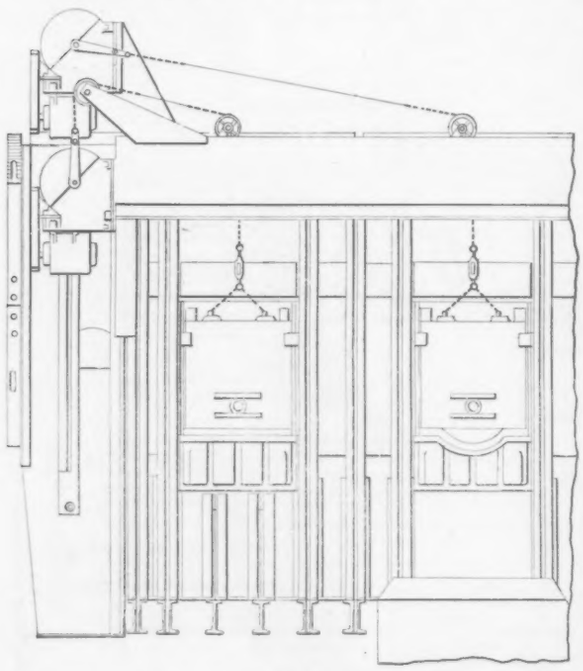


Fig. 6.—Method of Raising Open Hearth Furnace Doors.

plant consists of 10 400-hp. Stirling boilers, with Green chain grate stokers. Coal, which is received upon a surface track at this boiler plant, is dumped directly into a concrete hopper, from which it is elevated into storage bins. From these it is drawn directly into an electric larry car, which traverses the length of the boiler house, feeding the hoppers of the stokers. This same larry car also delivers the coal to the pit furnace gas producers, which are located in line with the boilers.

The electrical plant consists of three 250-kw. generators in each of the two power houses. In the pump house are four 5,000,000-gal. two-stage centrifugal pumps driven direct by electric motors.

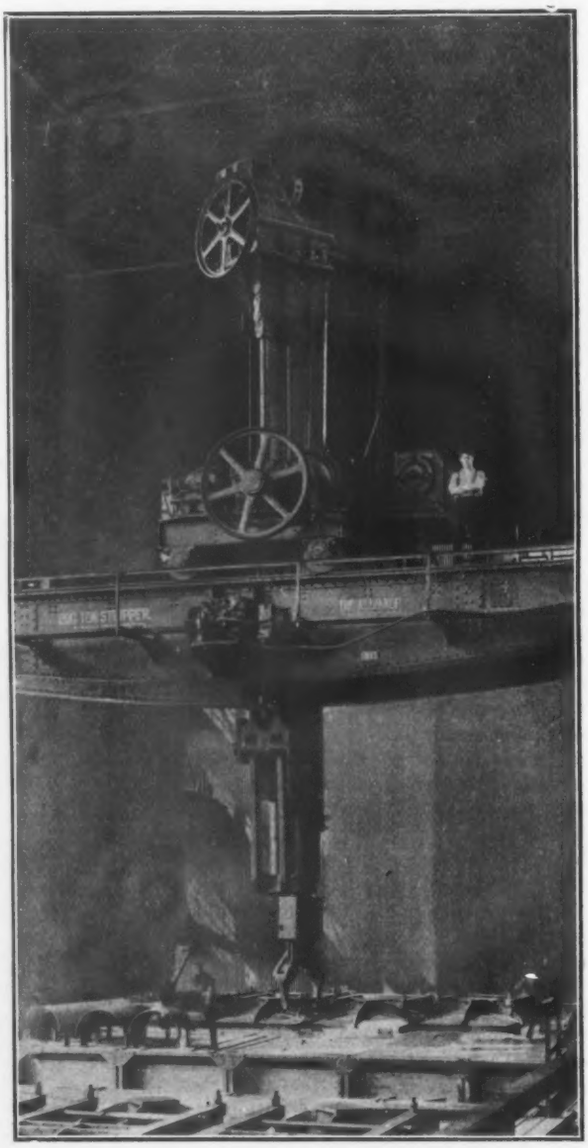


Fig. 8.—Ingot Stripping and Charging and Drawing Machine.

Iron Ore Supply.

The New York State Steel Company has three iron mines on the Mesaba range—the Kellogg, near Biwabik, Minn., producing high grade Bessemer ore, the mine aver-

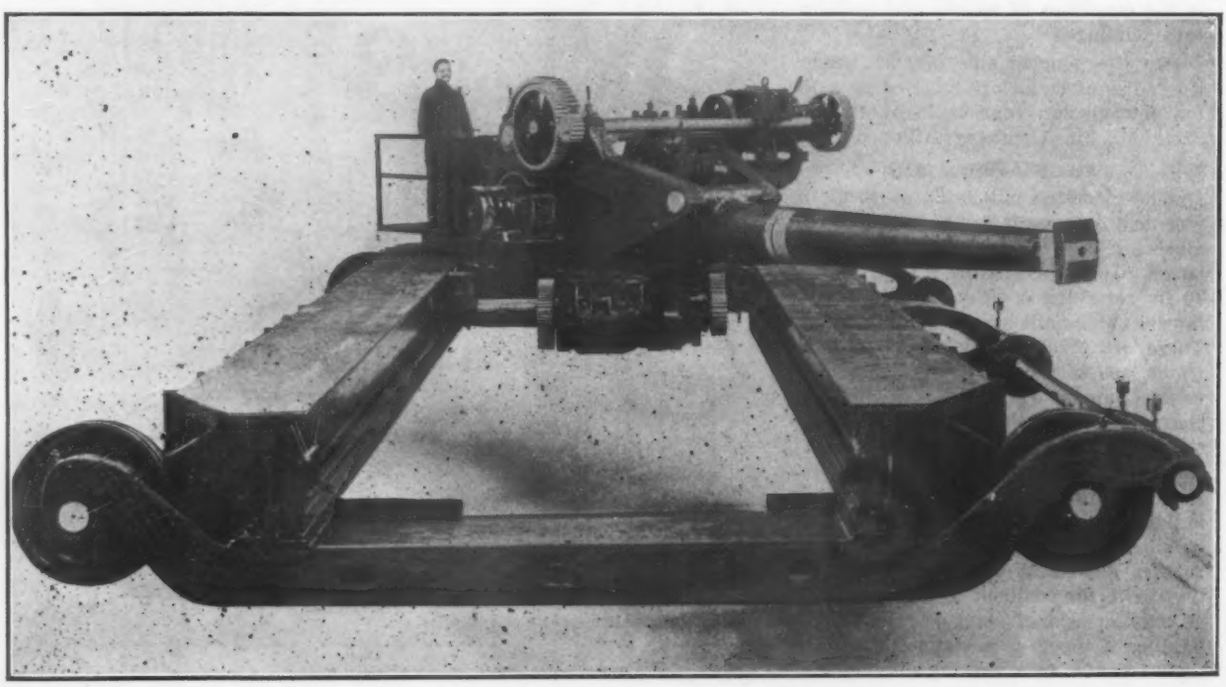


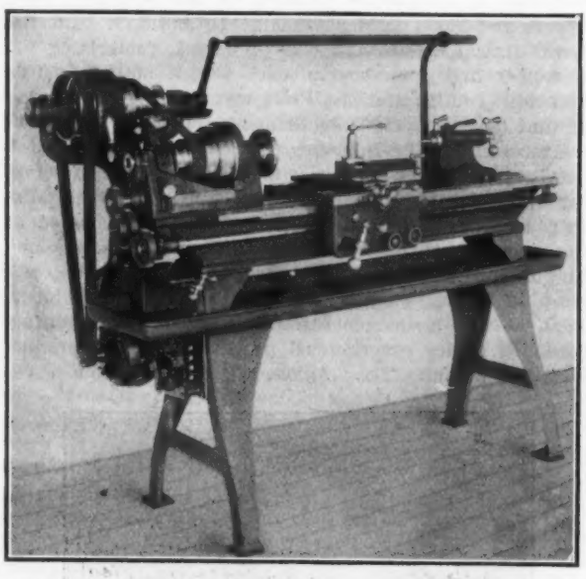
Fig. 7.—The Morgan Rotary Charging Machine.

aging 60 per cent. metallic iron; the Larkin, near Virginia, Minn., also producing a Bessemer ore, and the Knox, at the east end of the range, near Mesaba, Minn., which shipped ore this season for the first time. The company is thus practically independent of the ore market, though naturally it would be a seller of its high grade Bessemer ore and a buyer of some non-Bessemer and silicious ores.

The company is at present putting its product on the market in the form of basic pig iron, blooms and billets, but its intention is to provide a finishing plant in the near future. The officers of the company are the following: President, F. N. Beegle (president of the Union Drawn Steel Company, Beaver Falls, Pa.); vice-president, Frederick Davidson; secretary and treasurer, Louis R. Davidson. F. E. Porter is general superintendent, in charge of the works, and is assisted by John Quier, superintendent of blast furnaces; S. E. Phillips, superintendent of the open hearth and blooming mill, and Robert A. Noon, master mechanic. The mining department is in charge of Thomas F. Hildreth.

A Motor-Driven Star Lathe.

The Seneca Falls Mfg. Company, 255 Water street, Seneca Falls, N. Y., has recently brought out a new type of motor drive for its 9 and 11 in. Star lathes, as shown



A Star Lathe Made by the Seneca Falls Mfg. Company, Seneca Falls, N. Y., Equipped with a New Arrangement of Motor Drive.

in accompanying illustration. The advantage of this type of motor drive over previous and usual methods employed is in its adaptability to the use on small engine lathes of motors of all kinds. The drive has been designed so as to use any kind of constant or variable speed motor, nonreversible, preferably with a speed of 1000 to 2000 rev. per min. The motor may be easily attached and a pulley of proper size on the motor transmits power by belt to the countershaft pulley running constantly in one direction; a belt is also used from the cone pulley on the countershaft to the cone pulley on the head spindle. Means are provided for quickly tightening belts, and they can be kept at proper tension until worn out without shortening. Experience has proved that this method of driving small lathes has advantages over rigid gearing and chain belt drives and will prevent damage to both motor and lathe.

Starting, stopping and reverse rotation of the lathe spindle are controlled by a shifting bar placed horizontally above the lathe within easy reach of the operator. Moving this shifting bar to the left imparts forward motion to the lathe spindle, and to the right reverses it; bringing the shifting bar to the center position stops the lathe. The driving mechanism consists of friction clutches and gears for reversing the motion, encased and running in an oil bath. It is simple in construction and not likely to be damaged or disarranged. The bearings are thoroughly lubricated by oil rings.

Some New Canadian Projects.

TORONTO, November 20, 1909.—The town of Welland is becoming an industrial center of importance. Its progress in this respect is largely due to the advantages of its location. Situated close to the United States boundary line, to the Falls of Niagara, on the Welland Canal and on four lines of railroad, it could hardly fail to go forward in this particular period of Canada's development, when United States capital, cheap hydro-electric power and a capacious home market are available as they never were before. The Electric Steel Company of Canada is the latest concern to project works for the town. It proposes to erect a large plant at the point of juncture between the canal and the feeder of the canal, where an extensive site is reported to have been secured for the purpose. It is announced that the plant will be ready for operation in the spring.

The ratepayers of Goderich, Ont., recently voted on a by-law for the guaranteeing by the municipality of the bonds of the Good Roads Machine Company in the sum of $40,000. The by-law was carried. The company will establish works in the town.

The Thunder Bay Harbor & Improvement Company has almost completed the ore dock it is building near Port Arthur for the Dominion Bessemer Iron Company. The first cargo of iron ore is expected to leave the dock in a few days for Cleveland.

Thomas Hogan, well known as a mining man in the Rainy River country, reports an unusually active interest in iron ore lands in that district. He says that a transaction is now pending for the sale of certain iron lands he holds on the Canadian Northern Railway line, and that if it goes through it will be of greater magnitude than any negotiated there for a long time. He has had a large number of men engaged in the testing of his iron properties this season. Colonel Ray, another Port Arthur man prominently identified with developments there, spoke to like effect when he was in this part of the province a week or two ago.

It is said that the Atikokan Iron Company has an offer from Western interests for the purchase of its pig iron output in the molten state for the feeding of a steel converter and ingot works, whose construction at Port Arthur is under consideration. The steel made would be shipped to the Western interior. At present the bulk of the Port Arthur pig iron is sent to the eastern Ontario foundries. W. J. Lindsay of Toronto has a number of industrial undertakings in which he is trying to interest the Port Arthur municipal corporation and the Board of Trade. These include projects for rolling mills, open hearth or Bessemer steel works, a rod mill, a galvanizing plant and wire and nail works.

Application is being made to the Dominion Parliament for an act to incorporate the Dominion Dry Dock & Shipbuilding Company, the capital to be $1,000,000, the chief place of business to be in Montreal.

The Dominion Iron & Steel Company has placed an order with an English company for two briquetting plants at a cost of $50,000. This is for the economizing of coal dust now lost in the handling of coal used in the company's system. C. A. C. J.

The Knecht Planer Company, successor to the Knecht Brothers Company, Cincinnati, Ohio, announces that it has sold its drill business to the Crane Machine Tool Company of the same city. The Knecht Planer Company also states that it is about to enter the market with a new high speed planer, variable speed instantaneous, power control throughout. It has been developing this machine for the past three years and is now ready to book orders for 1910 delivery.

The Duquesne Steel Foundry Company, Pittsburgh, has placed an order with the Whiting Foundry Equipment Company for four 5-ton cranes, to be installed in its plant at Corapolis, Pa.

The Cambria Steel Company's Presidency.

The rumors which have been current of an impending change in the presidency of the Cambria Steel Company were verified November 17 when Effingham B. Morris, chairman of the Executive Committee of that company, issued the following statement:

President Powell Stackhouse of the Cambria Steel Company having announced his decision to retire from active

POWELL STACKHOUSE.

business, it is proper to say that he will be succeeded after the next annual meeting by Charles S. Price, who, for some years past, has been the vice-president and general manager of the company.

Mr. Stackhouse entered the service of the company 54 years ago, and has well earned a right to rest after such a period of faithful and successful labors. Mr. Stackhouse will remain as president of the Cambria Iron Company, and while relieved therefore of all duties and responsibilities connected with the active management of the works operated by the Cambria Steel Company, he will still be available for consultation. All the operating departments, including sales, purchasing and freight, will hereafter be concentrated at Johnstown under Mr. Price's direct supervision. The treasurer's department, the auditor's, secretary's and stock transfer office will remain in Philadelphia at the head office of the company, where directors' meetings and Executive Committee meetings will continue to be held. Mr. Price will reside in Johnstown as heretofore, but will be in Philadelphia as frequently as business may require his presence.

The annual meeting takes place in March. Following are brief sketches of the retiring and incoming presidents:

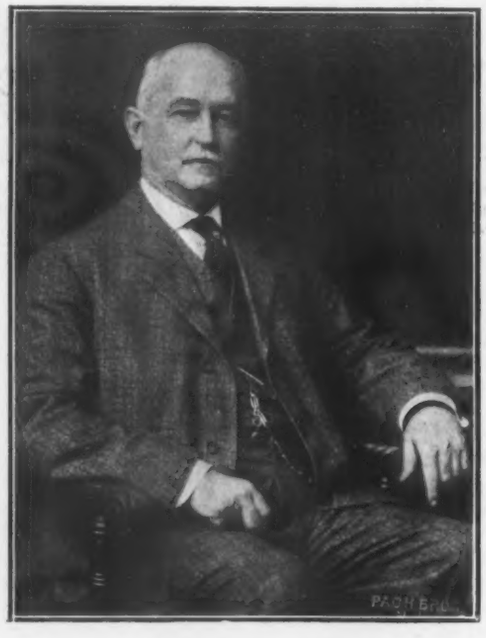
The Retiring President.

Mr. Stackhouse was born in Philadelphia July 16, 1840. At the age of 15 he went to Johnstown to enter the employment of Wood, Morrell & Co., then conducting what was known as "the company's store," his uncle, the late Daniel J. Morrell, being the managing partner. He was at first a plain clerk, selling goods to workmen, but was soon placed in charge of the firm's cost accounts. He served five years in this capacity and then began a more strenuous career, entering the army during the Civil War and emerging with the rank of senior major. Returning to Johnstown, he was placed in charge of affiliated operations of the Cambria Iron Company, such as the brickyard, woolen mill, &c., then putting in seven years as assistant to the general superintendent of the company. For three years he resided in northern Michigan in charge of the mining operations of the Republic Iron Company. Returning to the Cambria Iron Company's service in Philadelphia, he was successively general manager, comptroller and vice-president and, on the death of President Edward Y. Townsend in 1891, he was elected president. In 1898, when the Cambria Steel Company leased the property, he was made president of that company. In every position he filled he has been the same energetic, painstaking, thoroughgoing but approachable and sympathetic man.

The Incoming President.

The promotion of Mr. Price to the presidency of the Cambria Steel Company is the recognition of years of faithful and valuable service in the interests of the company. Like his predecessor in this office, Mr. Price began his career in an inconspicuous position and won advancement by his merit. He is a native of Pennsylvania, having been born at West Chester August 27, 1852. He was graduated from Cornell University in 1872, taking the course in civil engineering. For a short time he was employed as a draftsman by the Detroit Bridge & Iron Works, Detroit, Mich., and then was elected city engineer of Lock Haven, Pa., serving for three years. In 1876 he took a position as draftsman in the engineering department of the Cambria Iron Company at Johnstown. When the company began the erection of its first open hearth steel plant he supervised the details of construction and on its completion was appointed foreman of one turn. For three years he served in this position and was then made superintendent of the department, becoming in 1884 superintendent of the Bessemer, open hearth and blooming department. In January, 1886, the metallurgical department was organized, comprising the Bessemer and open hearth steel works, blast furnaces and rolling mills, and Mr. Price was advanced in charge of that most important department.

According to the Johnstown *Tribune*, from which these details are secured, Mr. Price succeeded so well in bringing order out of chaos in his department after the disastrous flood of 1889 that when a vacancy occurred in the general superintendency his name was the only one that suggested itself to the principal officers of the company in connection with the position, and in October, 1890, he was made general superintendent of manufacture, his duties covering all processes of steel production and manufacture. Again, when there came a va-



CHARLES S. PRICE.

cancy in the office of general manager, a position which imposed duties far beyond those usually accompanying such a position elsewhere, there was no question of choice in the selection of a new incumbent, and Mr. Price was advanced to that position in March, 1892. Since that time he has been the sole responsible head of the company's local operations. When he first assumed the duties of general manager the total number of men employed under his direction was 7616. Some idea of the

growth of the plant under his management may be gathered when it is said that at the present time the Cambria payrolls provide for over 16,000 men, while more than 17,000 have been employed at times when construction and improvement work was under way. In addition to the duties of the positions above enumerated he has served for years as president of local water, gas and other companies. Regarding his personal characteristics, the *Tribune* says: "He is a strict disciplinarian, but always courteous to those with whom he is in association and to his subordinates, and it is a great compliment to the man that his methods and manner are unconsciously copied in the conduct of other men throughout the length and breadth of the Cambria Works."

The *Tribune* further says: "It is known that vast extensions and improvements are in contemplation, and this fact doubtless had a great deal to do with the removal of the headquarters of the president from Philadelphia to Johnstown. This arrangement will enable President Price to give much personal attention to the carrying out of the extension and improvement plans with which he is personally familiar and which are largely the result of his suggestion and planning."

The Railway Business Association's Dinner.

The large ballroom of the Waldorf-Astoria, New York, was crowded on the evening of November 10 with an exceptionally representative gathering of financiers, railroad executives and manufacturers, on the occasion of the first annual dinner of the Railway Business Association. The organization itself is distinct from the railroads, but several hundred railroad men were present as guests.

President George A. Post acted as toastmaster. In the course of his introductory remarks, he said:

"We are not a 'Faith Cure League,' a 'Sunshine Guild,' nor purveyors of 'Moonshine.' We are business men who want business. We do not want political offices; we want orders. We cannot have orders unless our customers are prosperous, and they cannot prosper against a stiff current of public hostility. Our plea for the railroads is not to 'let us alone,' but the shibboleth of our campaign to all concerned is: 'Let us behave!'

"This appeal is made to railroad folks from baggage handler to executive; to those who are patrons of the railroad, and to public officials clothed with authority in dealing with railroad matters. It is the high hope of the Railway Business Association that the time may come when public wrath will be as quickly aroused against any one who would seek to harm a properly conducted, square-dealing railroad as it would be aroused against an offending railroad. The condition precedent to this state of the public mind is that unremitting attention be given to that branch of railroad engineering having for its function the maintenance of public good will."

Interesting addresses were delivered by President Brown of the New York Central, President Ripley of the Atchison and ex-Congressman Hepburn of Iowa.

Dodge Mfg. Company Improvements.

The Dodge Mfg. Company, Mishawaka, Ind., is erecting an addition to its foundry, 360 ft. long, work on the foundations of which is now under way. The company also has under construction a warehouse of reinforced concrete, 112 x 256 ft., four stories and basement, which will be used for storage and shipping stock goods. With the completion of this warehouse, which will be about April 1, and the improvement of its shipping facilities, the company will be in much better shape to take care of its rapidly increasing business and will be prepared to give its agents and dealers, and power users generally, first-class service in the way of prompt shipments.

The company has just completed an extension of 250 ft. to the main machine shop, in which machinery is now being installed. The machine shop now has a length of 585 ft. on the crane runway and is equipped with a 25-ton Niles electric crane and a 10-ton Whiting crane.

The Gardner No. 7. Disk Grinder.

The line of disk grinders built by the Gardner Machine Company, Beloit, Wis., has recently been extended by the addition of a size No. 7, which differs from the company's other machines only that it accommodates larger disk wheels—30 in. in diameter or under—and

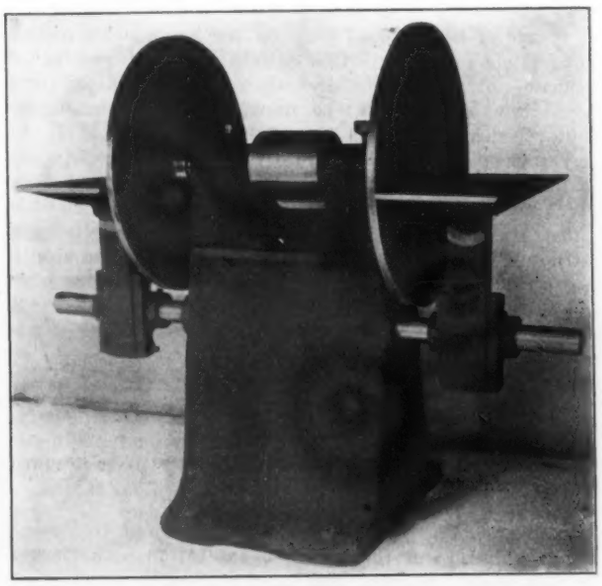


Fig. 1.—The No. 7, 30-In. Disk Grinder Built by the Gardner Machine Company, Beloit, Wis.

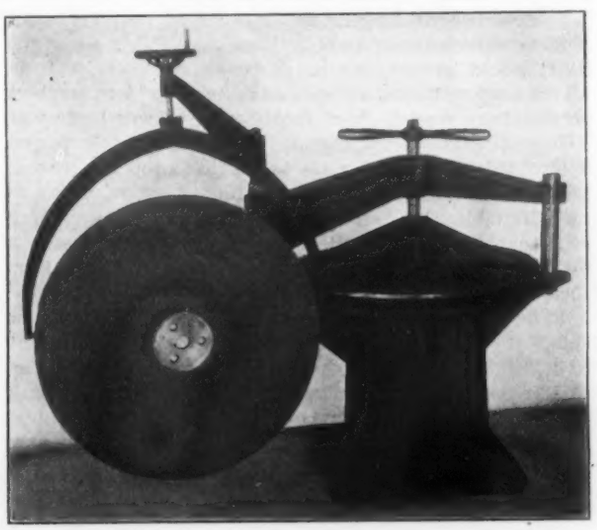


Fig. 2.—A Setting-Up Press for Attaching the Abrasive Disks to the Disk Wheels Equipped with a Handling Device.

has greater belt power. It is declared to be the heaviest and most powerful single head disk grinder on the market and is equipped with special work tables covering a wider field at the present time, it is said, than any other tool of its type. Fig. 1 shows a No. 7 machine equipped with the 30-in. disk wheels and plain work tables, but the Gardner universal and lever feed tables can also be used on it. Fig. 2 shows the wheel press used for setting up disks of this size. Since the 30-in. disk wheels weigh about 175 lb. each, there is excellent reason for equipping the disk wheel press with the lifting attachment shown, for convenience in handling the disks from and to the table of the press.

The universal Portland Cement Company, Universal, Pa., a subsidiary company of the United States Steel Corporation, has about completed an addition to plant No. 5 at that place which will give the works an output of 10,000 bbl. per day. This is believed to be the largest output of any single cement mill in the world.

TREATED STEEL FOR HIGH SERVICE.

The Demand for Greatly Increased Strength and How the Manufacturer Is Able to Respond to It.

BY JAS. H. BAKER.

Some of the things I mention are common knowledge among steel men, but this article is meant partly for commercial information and, therefore, some details are gone into which would be unnecessary in speaking to fellow craftsmen. And it will be a pleasure if I can lay this subject clearly before the users of steel, while calling attention of technical men to certain points. Treatment does not relate here to the way we use the steel after it is made, nor to where we place it in a structure, but to what we do to it to increase its ability for service. Nor does this article include tempering edge tools, &c. It refers to treatment, commonly called "heat

Fig. 1.—Track Wrench. Jaw of Untreated Steel Broke Under One Blow; When of Treated Steel 25 Blows Were Required to Break It.

treatment," of articles formerly used without treatment of any kind. But the principle applied to both classes is the same. I know that any statement about steel must be cautiously received, for the accepted facts of one decade are often upset by developments in the next. But some things become more and more clear, and what I present here is largely the outcome of my experience as a manufacturer of steel articles.

It would be just as wise to expect good service from an untempered axe or spring as to look for the best service from steel without treatment. If ever there was a case justifying the use of the picture "before and after" this is one. For we know that properly treated steel will be 50 to 150 per cent. stronger and many times more reliable. The strengths referred to here are those represented by the elastic limit of the steel, as shown by the drop of the beam in the testing machine. Further along the use of the extensometer in this connection will be noticed for its detection of weakness, and I think it will be found that we have only been about half awake to the importance of treating steel. The elastic limit being the measure of the working strength of steel this article need not be cumbered with figures of ultimate strength, though this is affected in the same way.

High Carbon Treated Steel.

Higher carbon in steel means greater strength, and heat treatment gives such steel still greater strength and reliability. So it is entirely safe to say that we are now using for some purposes steel three times as strong and many times as reliable as that we used a few years ago. Then in some cases the limit to increase in size is fixed by certain conditions, while there is a constant call for higher service. Therefore, the increased strength and safety must be had by putting the material into better condition. It is not such ancient history that our government engineers saw this condition and began to call for higher carbon treated steel. They were met by certain steel makers with the statement that it would be unreliable, would not stand shock, &c. Any one familiar with the present Government specifications will see that the engineers won.

It is a well known law that lowering prices increases demand. Therefore, the treatment of steel is coming to be a prime factor, for because of it a lighter article of the same strength and greater safety can be used in many cases. In other cases a lower priced steel, by a comparatively trifling additional cost, can be made to take the place of steel costing from two to five times as much. By treatment it is possible to use a steel which can be machined at commercial speeds and yet get a very strong article, say, of 100,000 lb. elastic limit and 30 per cent. reduction of area, to say nothing of the greater safety. But remember, there are places in which none but the best of alloy steel should be used, and then only after having been subjected to the most careful treatment. Bad steel cannot be made into good steel by treatment, but any of it can be vastly improved. While the fundamentals are comparatively simple, yet when the variations in size and relative thickness of parts of the same article, different degrees of heat, rate of cooling and the qualities needed for different kinds of service are considered, treatment becomes a matter for skilled men.

Care Needed in the Use of Terms.

In order that steel treatment may be better understood, look at some terms. Tempering, annealing, &c., are used in such contradictory ways that there is great need of standardizing the terminology of this subject. Metcalf called attention to this 20 years ago, but was not heeded. Hardening is done by heating and quenching and without heat by cold working. Sometimes we speak of air hardening; but this is only a faster way of cooling annealed steel than to let it cool in the furnace. A blast of air is often used in cooling special steels. To temper steel is to modify the hardness by applying heat. To anneal is to heat the steel and cool it slowly. Annealing has another fundamental meaning, and that is the removal of strains set up in forging or casting. There are

Fig. 2.—Dead Soft Steel Annealed.

just these three operations which can be applied to steel through heat, though the last one is subdivided into annealing to produce a change of grain, or softness, and annealing to take out strains. To anneal for change of grain the heat must be brought to about 1350 degrees F., while almost any degree of heat will help to remove strains. These distinctions should be made clear for the benefit of the thousands of young men who are now in technical schools where they are supposed to gain useful definitions. Among old steel workers there was no doubt as to the meaning of these terms, and any workman clearly understood what to do when he was told to harden, anneal or temper an article.

Now, when the engineer states that steel shall be oil tempered and annealed, we have simply to ignore the proper meaning of the terms and find out from his description what he means, for he may mean that the article shall be hardened in oil and then tempered. One paper

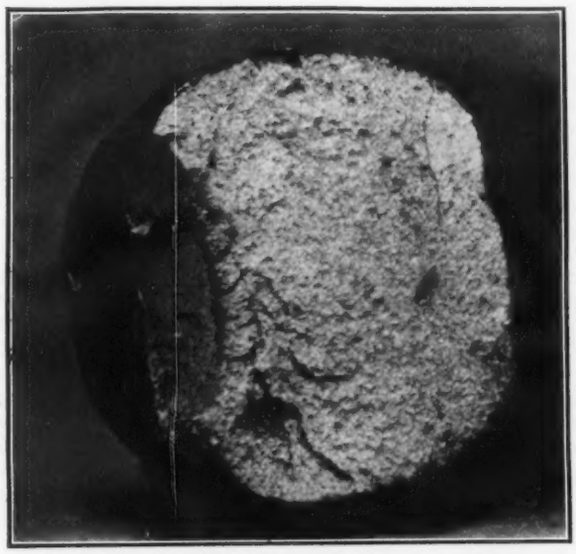


Fig. 3.—Treated Piece from Same Bar as Fig. 2.

says that "tempering has a tendency to produce a structure which is hard and brittle." Tempering has just the opposite effect; so here you have to read "tempering" as meaning hardening. Tempering always presupposes hardness. Get these terms clearly understood and there will be no further need of using quotation marks when printing them. True, the word "temper" is used in a symbolic way by steelmakers to designate certain carbons, or steels for certain purposes, but this use of the word has no reference to the condition set up in steel by heating and cooling.

Liquid Tempering.

In the strict meaning of terms, oil tempering comes under the broad term of what I will call liquid tempering, meaning that after the steel has been hardened and it is desired to temper the hardness, it is put into oil of the desired temperature and left there until it is equalized with the temperature of the oil. The degree to which such tempering can be carried is limited by the nature of the liquid. This method is valuable for the finest work and for small numbers of pieces, but for large quantities of the same article the method of placing them in boxes or tubes, closing them and slowly heating is good and is much practiced. Take an article like an auger bit, and it is very difficult to heat it alike in its different parts. In liquid tempering we can easily heat even the most unsymmetrical article without making any part hotter than another, and hence it is highly valuable for such articles as this. Of course the same is true of liquid heating for hardening—in lead, for instance.

Hardening and Tempering Combined.

There are two methods in which hardening and tempering are combined in the same operation. For instance, it is easy to draw the temper in a cold chisel, after it is hardened, from the heat which is left in the uncooled portion. This heat being conducted to the end of the chisel does the tempering to the desired degree and the tempering is then stopped by cooling it at once. This point is determined by the color changes on the surface, which had been roughly brightened after the hardening. A fact curious to the layman is that if this same operation had been performed on this steel without allowing oxygen as contained in the natural atmosphere to get to the steel while the tempering was going on, there would have been no change in color, though the tempering would be the same. This method would not answer for a twist drill or a railroad rail, as they should be of same temper in all parts. The other method is to partly cool the article and let the heat remaining in the inside do the tempering or drawing. This would not do for the twist drill, but would answer for the rail.

Heating, Cooling and Reheating.

The finest heat treatment of steel consists in heating it, cooling it and reheating it. The first commercial treating of railroad axles was done by heating, partly cooling and allowing the remaining heat to do the tempering. Now it is the practice of one works to heat and cool them and then reheat. In treating railroad rails, brake beams, &c., commercially they would generally be treated by the method of partly cooling, which gives good results in articles which are of fairly even contour. Some articles should be hardened only, while others should be hardened and tempered. For instance, tools for cutting very fine work in hard granite, steel mold boards for plows, certain kinds of files, &c., are hardened only. And others can be hardened to a modified degree by quenching in oil and used without drawing or tempering. Only as a matter of speed or modification in cooling is the kind of cooling medium important. In some cases we use water, in others oil and in others brine, &c. There is a great deal of misconception about "oil tempering." Case hardening may be said to come under the head of treatment, but it is really a well defined process of its own and is not considered here.

The simplest illustration of what heat treatment will do is shown in a lever which has been smartly bent and then straightened without heating, or with little heat, as it will then bend much more easily than before because the metal has been strained over its elastic limit and not restored. If after straightening it is heated a bright red

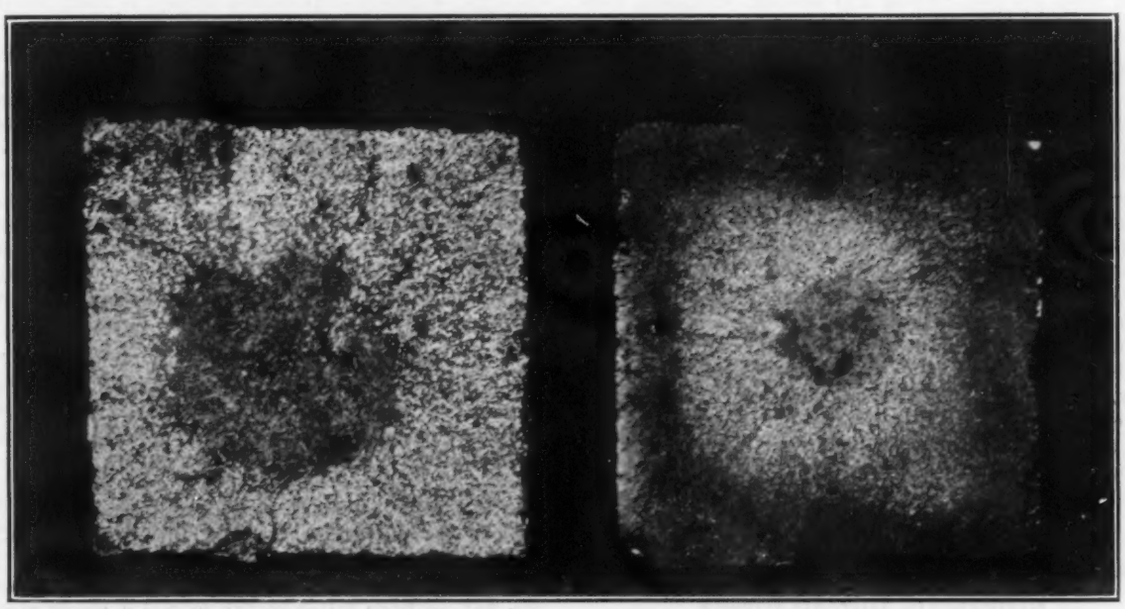


Fig. 4.—Steel of 0.60 Carbon, Forged and Annealed. Elastic Limit, 58,000 Lb.

Fig. 5.—Treated Steel from Same Bar as Fig. 4. Elastic Limit, 143,000 Lb.

it will be as good as before. But if after the heating last named it is cooled more or less suddenly it will be better than before, and very much better if it is fairly high carbon.

Heat Treatment and Increased Strength.

All steel is benefited by treatment; but in soft steel perhaps the most striking effect is in raising the true elastic limit, as shown further on. Some articles do not need treatment, because the sizes required by certain conditions, such as filling certain spaces or providing bearings for journals, insure strength enough without treatment. But the value of treatment can hardly be overestimated for car axles, railroad rails, brake beams, steel car wheels, wrist pins, wagon axles, large bolts, shafts for many kinds of machines, eye bars for bridges, car coupler pins, rail joints, gear wheels, pinions, automobile parts and numberless others which will occur to manufacturers and users. And if treated steel shall be found to resist corrosion to a marked degree its field will be still wider. An investigation of a new product, fibrous steel, will be of interest here. For instance, steel railroad ties would then be treated. One of the most recent articles to come under treatment are brake beams for railroad cars. These can be made practically as cheaply of medium carbon steel as of soft steel, and when treated are 50 per cent. stronger than the common article.

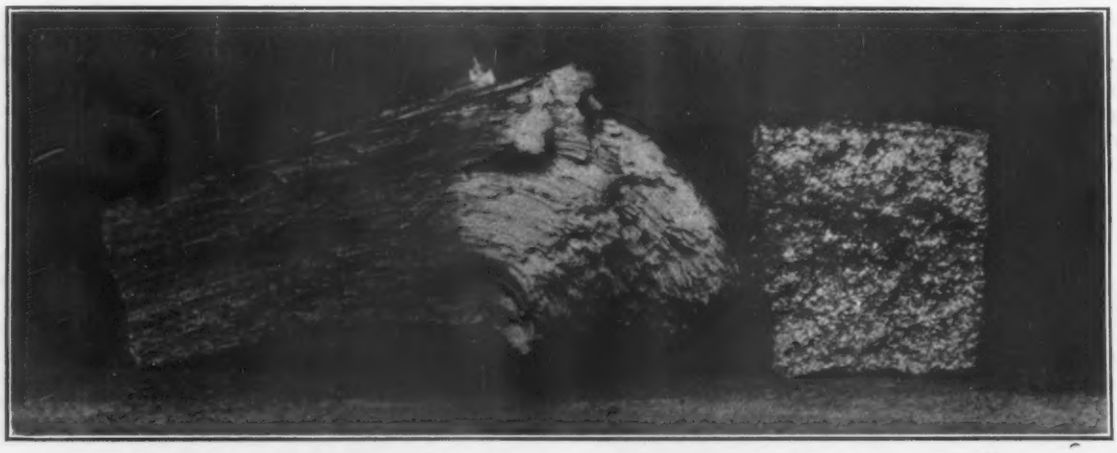


Fig. 7. Fig. 8.

Fibrous Structure and Greater Strength in Steel in Fig. 7, Due to Treatment. Fig. 8, Same Steel Untreated.

Here is a wonderful aggregate saving illustrating the value of treatment.

Cold working by hammering, drawing, &c., will produce hardness, and the finest things in steel treatment come from heating, cooling and heating, combined with cold working, for while common steel has a strength of, say, 55,000 lb., the strength of special steel may be brought up to 400,000 lb. per square inch by this combination. Good piano wire is an example of this.

But leaving out the cold work remarkable results can be attained. The working strength can be doubled, and the difference in strength of steel for a given service multiplies indefinitely when we go sufficiently high in strength. For instance, springs made of steel having 200,000 lb. elastic limit are only twice the strength of those made of steel having 100,000 lb. And yet under the same conditions the former can be made to stand thousands of times as long as the one of the lower strength. Take Fig. 1, a track wrench. When not treated one jaw was nicked, suitably held and struck one blow, which broke it. Another was treated, nicked and struck in the same way, and it took 25 blows to break it. Yet they were made in the same way of the same steel. After being treated the steel would probably have pulled twice as much in a testing machine as the untreated, but the difference in the ability of the jaws to do service and in the security against breakage is at least 25 times as much. And some tests went much beyond this.

Resistance to Alternate Stresses.

James E. Howard of the Government's Watertown Arsenal Testing Laboratory submitted to the American Society for Testing Materials this year results on the comparative ability of steels of different strength to withstand alternate stresses. He showed that when a fiber stress of 45,000 lb. was imposed 0.55 per cent. carbon steel stood 16,240 times, while an 0.82 per cent. carbon, that is, much stronger steel, under the same stress stood 605,240 times, or 3600 per cent. of the first named. Under a 40,000-lb. fiber stress the 0.55 per cent. carbon steel stood 45,000 times, while the 0.82 per cent. stood 202,000,000 times and then was not broken. The fiber stresses named are very high, and common strength steel would not have stood at all. This shows clearly what I have been trying for years to say, that it is wholly a question of which steel will stand a given strain the oftenest. Now, had not the elastic limit strength of the steel been much above the working stress it would soon have broken, hence the great value of strong steel. Another point of interest in this test is that the load not having reached near the elastic limit, efforts made to prolong the limit of endurance by occasional annealing were said by Mr. Howard to be unsuccessful.

Physical deterioration of steel from self-contained causes has been and is yet quite a bugbear; for the idea prevails that though a given steel might possess fine physical characteristics a certain combination of elements would render it liable to change, outside of physical service. The theory is that certain elements, or the lack of them, will make steel bad even though it was good after the final treatment of it. Chemically this is true, for certain constituents would render it more liable to attack by outside elements causing corrosion, &c. The ground work of finding what will produce good steel lies in physical tests. And having secured, by chemical jumps or otherwise, a steel which answers a certain purpose, it is analyzed so that it may be reproduced; and after a series of tests from which is learned the influence of certain elements, we reason from these to other combinations. In other words, science does not make facts, but facts are the foundation of science. However, it must be understood that nothing remains the same, and that steel perhaps is always changing, but the causes of these changes may be dismissed as having but little practical bearing so far as physical service goes.

So-Called Crystallization from Use.

As to crystallization in steel, except as it is caused by heat and cooling, there is no such thing. Crystals may be changed from coarse to finer through lengthening by cold work, but not from fine to coarse. The expression cold work may include work at any heat below the recalescence point; that is, the degree of heat at which the crystalline structure is dissolved. I repeat what I stated some years ago: "The world has heard a great deal about steel crystallizing in use, but we have failed so far to find a single positive proof of this. The facts are that while by constant use steel will break sooner or later, breaking occurs by the

steel parting along the faces of the crystals, and under certain conditions of breaking these crystals show up very distinctly. They were there before." For instance, taking steel in the condition of very fine crystallization, or fibrous, as shown in Fig. 7, it is impossible to put this into a crystallized condition without heating. Dr. Walter Rosenhain, in a paper before the Iron and Steel Institute at its May meeting, 1909, in Glasgow, showed that instead of steel being changed from the fibrous to the crystalline structure by punishment, exactly the contrary was true. He took a piece of steel, polished it and pulled it until it parted. It was shown by the microscope that the crystals as the pulling went on lengthened more and more until when the piece started a fibrous structure had been formed, while when the piece was nicked and broken at another point the crystalline structure was revealed. This can be seen clearly in the fracture of any specimen whose area was much reduced while being pulled apart. Dr. Rosenhain has put me under obligations by this experiment and statement, because he shows the fact so clearly. The importance of a right understanding of this question and that of deterioration can hardly be overestimated, becausse to-day men are much afraid to use high strength steel, and with the error will go this unfounded fear.

Grain and Fiber in Steel.

That this matter may be still more clearly understood, look for a moment at what really does happen as to crystallizing and how different formations are obtained. Please remember that grain is a different thing from fiber. Hemp, good wrought iron and wood have fiber, while sandstone and steel (in its common condition) have grain. The ability of crystalline steel to resist snapping and to give long service depends on the fineness of its crystallization, all else being equal. Fig. 2 shows a piece of dead soft steel annealed and nicked which under a sharp blow broke short. Fig. 3 is a piece from the same bar treated, that under like conditions bent nearly double before breaking. Fig. 4 shows a higher carbon steel, about .60, forged and annealed, which has an elastic limit of 58,000 lb. and a reduction of area of 23 per cent. Fig. 5 is from the same bar and has an elastic limit of 143,000 lb. per square inch and reduction of area of 26 per cent. This result is out of the usual, as this had very careful treatment. We hear a great deal about growth of grain, breaking down grain, &c., in steel; but why use misleading phrases? The grain in steel does not grow, nor is it broken down, except by cold work. Heat steel to a given temperature and cool it in a certain way and the grain will be a given size. And, outside of cold work upon it, it will remain just this size and cannot be changed without heating again. But reheat the steel to a sufficient degree and the steel is brought into a plastic condition; that is, the grain is dissolved, and in cooling another formation of grain is caused, or by special treatment a fibrous structure. What we really do is take out one formation and cause an entirely new one. There are no crystals in steel while heated up to and above the recalescence point.

Howe says in his valuable "Metallurgy of Steel" that if we elongate the crystals by cold work and then heat the steel sufficiently the crystals are brought back to an equiax shape, and he adds that this is what we might not expect. Let me say that this is just what we should expect, when we get clear of the fog about "breaking up" crystals.

The same apparent structure practically may be formed in a given steel when heated to, say, 1550 degrees F. and cooled in one way, as when heated to 1250 degrees and cooled in another way, but the quality would not be the same. These different heats would produce entirely different structures if both cooled in the same way, this being clearly shown in two out of ten pieces from the same bar, Fig. 6, No. 1 being cooled from the lower and No. 10 from the higher heat. The difference between Nos. 1 and 2 of this series was hardly perceptible to the naked eye, while the difference between Nos. 1 and 10 is quite marked. However, as a matter of fine distinction, previous treatment has an influence on the new formation of crystals set up by reheating and cooling, just as one kind of steel will not crystallize like another, and as no steel is just the same after any heating that it was previous to that particular heating. But this does not change the principle involved.

The importance of a fine grain and of how to get it, is shown in what the edge tool maker does in order to get a good article. In hardening steel preparatory to tempering, hardness *per se* is not what the tool maker needs, otherwise he would select a steel of such composition which when heated and cooled in a certain way would give him just the degree of hardness required and thus avoid the tempering process. Since this softer steel would be easier to work and in less danger from variations in heating, why then does he not use it? Simply because good tools could not be made from this steel, and this because the goodness of an edged tool consists in having a grain fine enough to carry a good edge, for all edges are rough, and the coarser the grain the rougher the edge. The higher carbon steel when rightly treated gives this fine grain, but with it also so much hardness that it must be tempered to a considerable degree for nearly all uses.

In Fig. 7 is shown a piece of fibrous steel, much enlarged on account of the fineness of the fiber, while Fig. 8

Fig. 6.—Difference in Structure of Pieces Cooled in the Same Way After Heating to Different Temperatures.

shows the same steel before treatment. This steel is open hearth 0.65 carbon, and by treatment was rendered much stronger than in its original condition, and at the same time put into the general condition of good wrought iron, while being fully three times as strong. In this the grain formation was dissolved and a new grainless one, or a fibrous formation, was caused in its stead. Applications are now pending for patents on fibrous steel. It is very tough and hard to break endwise, while comparatively easy to break sidewise, and therefore would be excellent for articles in which the strain or punishment is at right angles to the length line of the bar, such; for instance, as car axles, pins for car couplers, plain shafts, piston rods, &c. So far as I know none of these articles have yet been converted into fibrous steel, as I know of no other production of it. But such steel would not be suitable for articles which need anti-splitting qualities, such as eye bars for bridges. The cut shows how it splits endwise instead of simply breaking. But again heat it enough and cool it differently and, presto! it is crystalline again as in Fig. 8, which shows that after all steel is at bottom a fibrous material, the whole world so far to the contrary notwithstanding.

Rail Steel.

The necessity for a better quality of rail is apparent, for it is now recommended that a large percentage of the

top of the ingots shall be thrown discarded, that greater precautions shall be taken in many ways, and finally that the rails shall be finished at a certain temperature; then, after all this, that the first rail from the top of this decapitated ingot shall be used in sidings, while the balance goes in main track. Rails properly treated would be much stronger, harder and very much safer against breakage than untreated ones. Open hearth rails, with their low phosphorus, are less liable to break than Bessemer steel rails, but it is not at all certain that the open hearth will wear as well; in fact, it seems to be extremely doubtful. I hazard little in saying that a treated Bessemer rail will, in every respect, be better than an open hearth one untreated, care in other respects being equal, just as open hearth steel treated is for many purposes better than crucible steel untreated. There are difficulties in the way of properly treating rails owing to their irregular cross section, but what are engineers for if not to meet difficulties. As far as I know, rails have not been treated in a commercial way. Of two pieces taken side by side from the head of a standard Bessemer rail the untreated piece showed 53,000 lb. elastic limit, 32 per cent. reduction of area, with elongation of 38 per cent. in 2 in.; the treated piece, 90,000 lb. elastic limit, about the same reduction of area and elongation as the other, but was decidedly harder. In a bending test under blows the treated one bent to an angle of 30 degrees, while the other bent scarcely at all before breaking, the treated one taking many times more blows to bend it. Judged by the tensile test and elongation, the treated one should have bent as much as the other before breaking, but here again is shown the benefit of treating in addition to the added strength.

The Extensometer in Testing.

We now come to the greatest revelation of all—the fact that great as is the difference between treated and untreated steel, as shown by the "drop of the beam" in testing, the use of the extensometer shows in many cases twice the difference. Heretofore the elastic limit has been taken almost wholly from the drop of the beam of the testing machine. The specimen having been placed in position and the machine started, the beam on which the weight slides is kept from going up by moving the weight out steadily as the load on the specimen is increased. The action of the beam under the moving weight will be uniform as long as the steel is not perceptibly stretching. But if while the speed of the machine and of the travel outward of the weight is the same, when the specimen stretches fast enough the beam will drop, and for a little time will not respond to the further pull on the specimen, hence the term. We now find that some untreated steel begins to stretch long before the lengthening is rapid enough to drop the beam, hence the true elastic limit, as shown by the extensometer, is sometimes not more than one-half of that shown by the beam drop, this depending on the temperature at which it was rolled, &c. For instance, a soft or common steel, such as is used in bridges, wagons, cars, &c., untreated might show, say, 28,000 to 32,000 lb. elastic limit when the extensometer would reveal its real elastic limit to be 15,000 to 20,000 lb. But treat this steel and even if its elastic limit by the drop of the beam was raised but little the true elastic limit would be perhaps doubled. This goes far toward explaining the "treachery" of steel, because while two pieces from the same heat might show alike when tested in the ordinary way, one piece might be only half as serviceable. There is bound to be a much wider demand for testing appliances, pyrometers, &c.

I do not here go into the matter of treating steel castings, but this is just as important as that of wrought steel, for the same general laws seem to govern all metals having iron for a base.

Acknowledgments are hereby made to Gulick, Henderson & Co.'s Testing Laboratory for proof tests in connection with this article.

The Goldschmidt Thermit Company, West Street Building, 90 West street, New York, has been advised that the British Corporation for the Survey and Registry of Shipping of Glasgow, after exhaustive tests, has sanctioned the use of the thermit process for repairs to fractured sternposts, lower portions of rudder frames and damages of a similar character.

Canadian Bounty Payments.

TORONTO, November 20, 1909.—In the fiscal year closing March 31 last the Dominion Government paid out in bounties the total sum of $1,864,614. It was divided as follows: Algoma Steel Company, $304,789; Dominion Iron & Steel Company, $1,067,528; Nova Scotia Steel Company, $130,374; Hamilton Steel & Iron Company, $252,311; Canada Iron Furnace Company, $39,968; Canada Iron Company, $3742; John McDougall & Co., $3394; Lake Superior Corporation, $45,890; Ontario Iron Company, $6887; Canada Iron Corporation, $9726. Binder twine manufacturers, producers of crude petroleum and makers of lead also received bounties. The bounties will probably aggregate a smaller sum in the current fiscal year, because they scale down. It is stated that the Dominion Iron & Steel Company has progressed in economies at a rate quite equal to that at which the bounties per ton are dwindling. For the most part the bounties are restricted to articles consumed at home and are forfeited by exportation. But such final forms as the material takes in the case of rails, &c., not themselves being direct objects of bounty legislation, may be exported without any retroactive effect upon the bounty received on the constituent iron and steel.

Anti-Combine Legislation.

In the speech from the throne at the opening of the Parliamentary session last week legislation as to combinations in restraint of trade was foreshadowed. There appears to be an idea in the mind of the Government that the provisions of the law, including the anti-combine section of the tariff act, are not adequate for the purpose. The criminal code contains penalties for the maintaining of combinations in restraint of trade and for the securing of undue profits. The tariff act provision prescribes as punishment the removal of the duty on any article whose sale in Canada is restricted by a Canadian combination of manufacturers or dealers. It is supposed that the Government aims at the better regulation of company merging. At the present time the forming of mergers is of enough frequency to attract attention. It is improbable that the Government has any thought of checking the development, but it may believe that at present the latitude is too great. Very strong representations have been made to the Government against the trust tendency. The complaints have been prompted rather by the supposed nature of agreements holding between associations of manufacturers than by apprehensions from mergers.

Frauds Under the Preferential Tariff.

The Dominion Government has decided that, to protect the revenue from fraud on the part of foreign exporters who use Great Britain as a stopping place for shipments to Canada in order to get the benefit of preferential tariff rates, a Canadian agent must be appointed in London, his principal duty to be the ascertaining of the origin of goods leaving the United Kingdom for Canada. Under the regulations to which the administration of the preferential tariff is subject, articles can be admitted at the rates of that tariff and upon condition that at least 25 per cent. of their value has been contributed by processes undergone in the United Kingdom or other of the British communities entitled to the preference. The Canadian Manufacturers' Association has given much attention to this matter and it is alleged to be a fact that a very considerable quantity of the merchandise entered at preferential rates has not the requisite element of British labor in it. Very nominal finishing touches are said to be all there is to show in many cases as the contribution of British industry to the article's value. German goods are believed to be more commonly sent in in this manner than any others, the motive being greater in their case, as dutiable German goods have to bear the surtax in addition to the regular duty.

C. A. C. J.

A Newton 15-In. Stroke Slotting Machine.

An entirely redesigned slotting machine has been adopted as a standard design for all sizes from 12 to 24 in. stroke, inclusive, by the Newton Machine Tool Works, Inc., Philadelphia, Pa. Two views of the 15-in. stroke machine are given herewith. The frame of this machine is of box type construction, heavily ribbed, and having exceptionally thick walls for a given size machine. The cutter bar has square locked gib bearings in the guide, and the adjustment sidewise is made by a long taper shoe, which gives a solid bearing the full length of the bar, whereas in former designs this adjustment was made by set screws.

The cutter bar is counterweighted (the arm of the counterweight is a forged bar) and carries a relief tool apron, having vertical and horizontal steel faced clamping surfaces, with necessary clamps, and is arranged for vertical adjustment through a square shaft shown immediately above the tool apron, which is arranged to revolve the elevating screw by bevel gears. The face of the cutter bar has finished grooves into which corresponding tongues on the yoke washer fit, to relieve the elevating screw of strain when taking the cuts. The cutter bar guide is arranged as shown to be adjusted vertically to support the bar when cutting in its lowest position, and is fitted to the frame of the machine by square locked gib bearings.

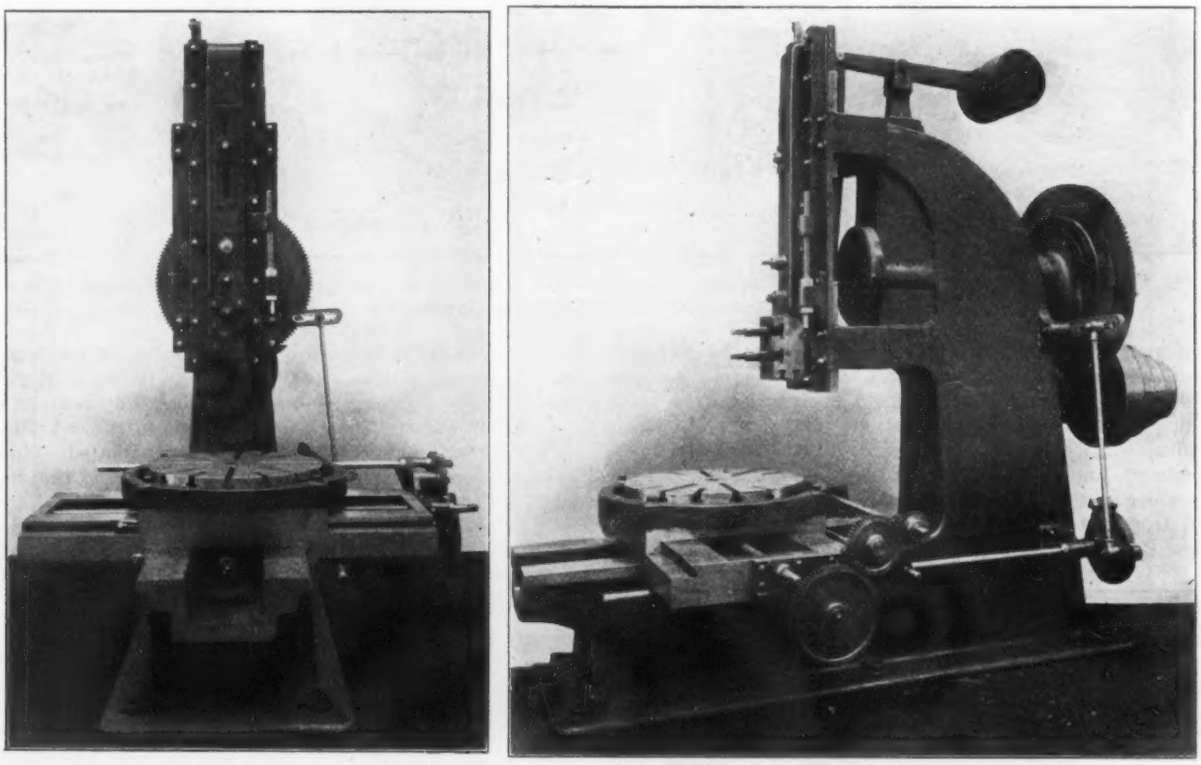
The drive to the bar is through broad faced coarse pitch gearing, with Whitworth disk, giving quick return to the stroke, and a cone pulley giving four changes of speed; the connecting rod is held to the driving disk by a bushing having a tongued face; these tongues are arranged to fit in corresponding grooves in the crank plate, to relieve the stroke adjusting screw from strain when taking cuts.

The circular table is of especially heavy construction, is arranged with a central bearing into which plugs for locating the work can be fitted, and is amply supplied with tee slots for holding the work. The circular table has a bearing 8 in. in diameter and 4 in. deep in the saddle, and is held securely to this bearing on the saddle by a continuous circular clamp, which has a full bearing 1 in. wide on the outside of the table. This circular clamp also serves as a cover for the rotating worm; the teeth for the worm wheel are cut out in the periphery of the work table.

The cross saddle has square locked gib bearings holding it to the frame, which are adjusted by taper shoes, and the adjusting screws have a bearing at each end to permit of always maintaining the screws in tension.

Reversing variable automatic power feed and hand adjustment are provided for the circular, in-and-out and cross movements; the screws and shafts controlling the different movements have their driving gears fitted to the square end of shafts, and can be engaged or disengaged by removing the gears from mesh.

A valuable feature to insure rigidity in the drive of the machine is the machining of the trunnion, on which the driving face plate gear is mounted, from the solid. The circular table on this machine is 32 in. in diameter, entirely surrounded by an oil pan. The maximum length of stroke is 15 in.; the distance from the face of the ram to the frame is 32 in., the cutter bar slide has 12 in. of vertical adjustment; the length of the cross feeding movement is 36 in. and the length of the in-and-out feeding movement 36 in. The machine will admit work 20 in. in hight. The maximum distance from the center of the circular table to the face of the bar is 27½ in., permitting operations on the periphery of 55 in. diameter circles. This machine will weigh approximately 15,000 lb., and would occupy a floor space of 3 ft. 2 in. by 9 ft. 2 in. When desired the machine can be arranged for motor drive, using preferably a 7½ hp. 2 to 1 or 3 to 1 variable speed motor. These machines are manufactured in quantities and are carried in stock.



Two Views of a 15-In. Stroke Geared Slotting Machine Built by the Newton Machine Tool Works, Inc., Philadelphia, Pa.

The Independent Bridge Company, North Side, Pittsburgh, has begun work on the construction of foundations for an addition to its plant, which when completed will about double its present capacity. The company has considerable work on its books composed of small contracts for steel structures and, besides operating day turn, finds it necessary to employ its workmen overtime three or four nights during the week. Other work being executed includes bear traps and other special structural material for a number of river contracts of the Government. The National Mfg. Company, an allied interest of the Independent Bridge Company, is also quite busy, having orders booked for over 400 annealing boxes weighing from 2500 to 13,050 lb. each, intended for use in sheet and tin plate and galvanizing works.

The Colburn Floating Reamer Holder for Boring Mills.

What is believed to be the first commercial application to the vertical boring and turning mill of the idea of floating a reamer is embodied in a new floating reamer holder now being introduced by the Colburn Machine Tool Company, Franklin, Pa. In the illustrations, Fig. 1 shows the floating reamer assembled and also shows it with its parts separated; Fig. 2 shows it in use on a 30-in. boring mill, and Fig. 3 shows a cross sectional view of the holder.

Among the numerous advantages of the floating reamer holder are that it will hold any make or style of reamer, whether solid or shell, adjustable or non-adjustable. It is only necessary that the reamer have a Morse taper shank. The holder, moreover, can be used on any make or style of vertical boring mill having a turret with flat sides. Nearly all users of chucking machinery appreciate the advantage of using a floating reamer on the final finishing of the work before removing it from the machine. When a reamer is held rigidly in position it is likely to produce a taper hole or ream the hole too large. On any machine having a turret with a cross movement, such for instance as a boring mill, the floating reamer is practically indispensable. A machine of this kind depends upon a center stop to bring the turret holes into alignment with the main spindle, to which is attached the chuck or work holding fixture. Unless special care is taken the operator will not bring the turret back to exactly the same position every time, even with the positive stop. The pressure of the hand on the crank handle is likely to vary enough to change the exact alignment of the turret and spindle a few thousandths of an inch, and reaming a hole with a reamer rigidly fixed in the turret would, under these conditions, cause the hole to be tapered or enlarged to a greater or less degree. By having the reamer so held that its axis is always maintained parallel to the center of the hole, but at the same time so arranged that it has a slight self-adjusting tendency radially so that the hole and reamer will automatically keep in perfect alignment with each other, a likelihood of inaccuracy is eliminated. This is what is accomplished, it is claimed, by using the device illustrated.

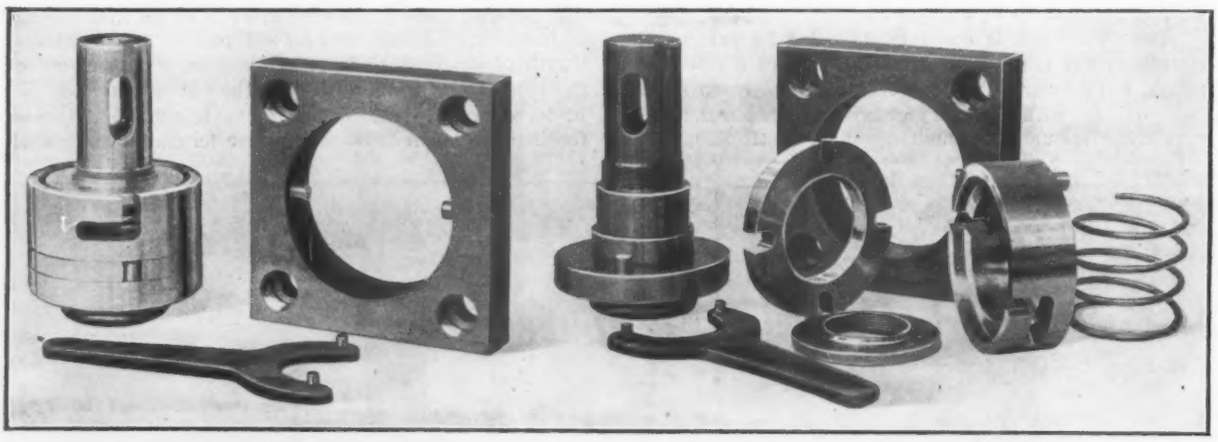


Fig. 1.—Assembled and Unassembled Views of the New Floating Reamer Holder for Vertical Boring and Turning Mills, Made by the Colburn Machine Tool Company, Franklin, Pa.

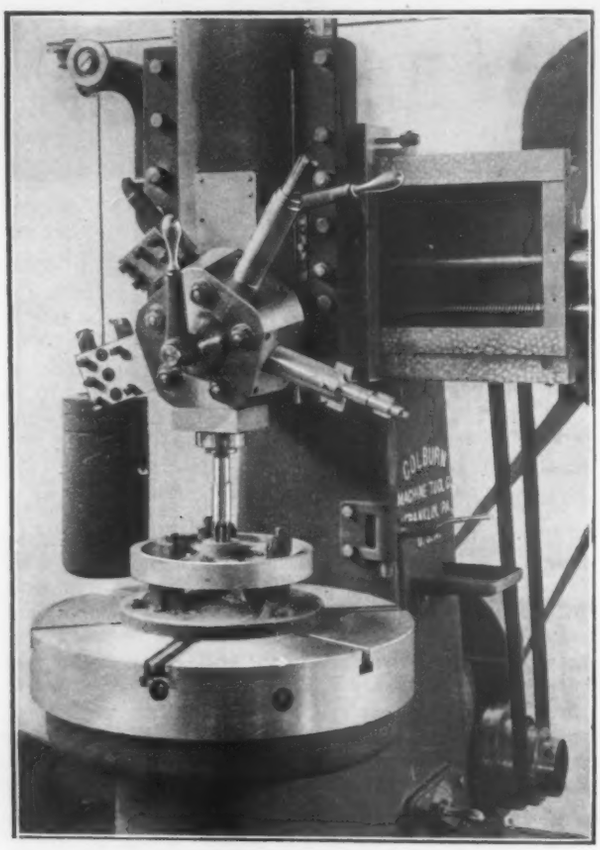


Fig. 2.—The Floating Reamer Holder Applied to a 30-In. Colburn Boring Mill.

Referring to the line drawing, Fig. 3, plate *a* is made to fit the face of the turret on any size or make of boring mill, and is fastened to it by four filister head screws. The sleeve *c* is held in the plate *a* by two steel pins *b*, which are tight in the plate *a* and are made to fit freely in the bayonet grooves *d*. The reamer holder *e* floats on the sleeve *c*, the floating motion being obtained through the four steel pins *g* extending into the driving ring *f*. Two of the pins are tight in the holder *e* and two in the sleeve *c*. The faces of the sleeve *c*, the driving ring *f* and the reamer holder *e* are held tight against each other by a spring *h* which insures the reamer being held perfectly true. The spring *h* is adjusted by the nut *i*,

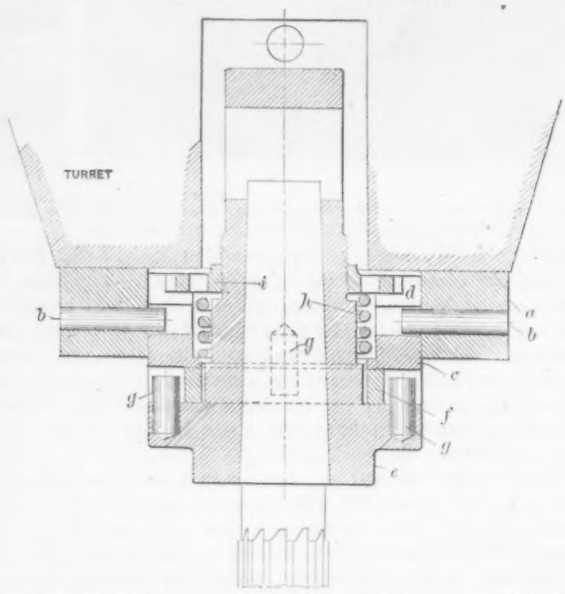


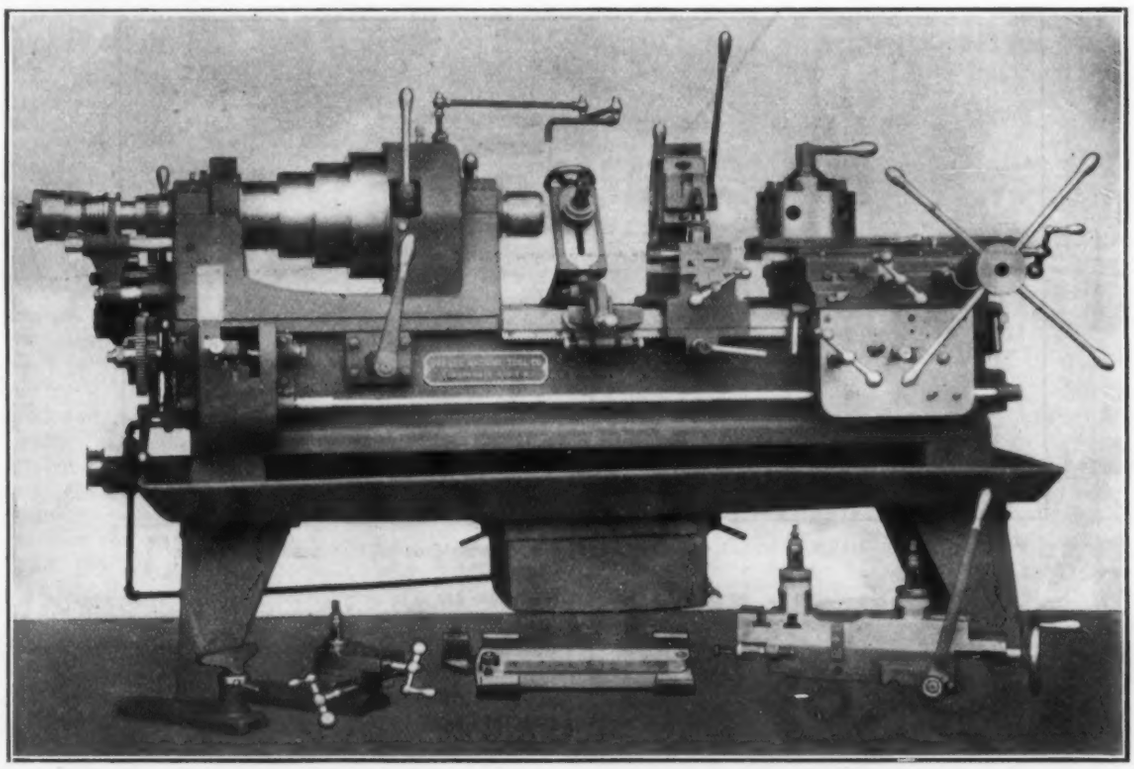
Fig. 3.—Sectional View of the Colburn Floating Reamer Holder.

which is turned with a spanner wrench furnished with each holder.

It will be seen that the plate *a* is the only part of the device that has to be made special to fit different makes of boring mills. The manufacturer is prepared to furnish these holders with plates to fit any make of vertical turret head mill. The holders are made in two sizes; the No. 1 has a No. 4 Morse taper socket and is capable of holding reamers up to 3 in. in diameter, and the No. 2 has a No. 5 Morse taper socket and is capable of holding reamers up to 4 in. in diameter. In Fig. 2, where the holder is shown in use on a 30-in. boring mill, a 1½-in. reamer is being used.

A New Dreses Universal Monitor Lathe.

For heavy all around brass working turret lathe work the Dreses Machine Tool Company, Cincinnati, Ohio, has brought out what it styles a full universal monitor lathe. It is claimed that with the several new features introduced it is possible to turn out without special tools in a more economical way more and better work than can be handled by the ordinary universal monitor lathe. The turret carriage is provided with an automatic all geared feed similar to that of an engine lathe with quick change gear box. The coarsest feeds are 8, 11½, 14 and 18 per inch, conforming with the standard pipe threads. By means of a slip gear these four feeds are multiplied by four and so can be used as turning and boring feeds, and the changes can be made instantaneously. Other feeds and pitches can be easily obtained by change gears.



The Full Universal Monitor Lathe Built by the Dreses Machine Tool Company, Cincinnati, Ohio.

Interposed between the upper and lower part of the turret carriage is a double dovetailed plate, to the lower side of which a shoe swivel is connected which slides on the bar of the taper attachment shown below the oil reservoir of the bed. The frame of this attachment slides on the inside of the bed and a clamping bolt holds it in position. The whole device can be readily removed when not in use and no special provisions are necessary in the construction of the bed. By this arrangement, inside and outside, taper and straight threads can be chased by the turret without the use of a tap or die.

The upper part of the intermediate dovetailed plate has a screw with a ball crank for cross feeding by hand, and positive clamping stops are provided for setting the holes in the turret in alignment with the spindle. The turret carrying slide is provided with a pilot wheel for rapid movement and also with a screw for finer adjustment. The pilot wheel with its stem is removable so as to be out of the way when the screw feed is used. The turret revolves on a stem with adjustment for wear and the locking bolt withdraws at the return movement of the top slide, making it semi-automatic.

The head stock has all-inclosed friction back gears. The friction is of the toggle joint type and is so designed that the whole operating mechanism can be put in place or removed without taking out the spindle. The spindle is provided with a standard automatic chuck, operated by the handle shown below the cone pulley. The chasing bar has a yielding follower holder, maintaining contact with the leader when chasing taper work. The taper attachment is provided with knurled screws for minute adjustment.

The machine is also equipped with a vertical forming rest, cutting-off rest, hand and slide rest, so that it can be used for all possible work occurring in the line of manufacturing brass or similar goods. It is also provided with a pan, oil reservoir, pump and piping, which adapts it for iron and steel work. It swings 20½ in. over the vees, has a bed 6½ ft. long and weighs about 3600 lb.

A Large Tacoma Ironworking Enterprise.—Ground has been broken by the Tacoma Ornamental Iron & Wire Works, Inc., Tacoma, Wash., for the erection of a new manufacturing plant 100 x 500 ft. One side of the building will be used for the manufacture of ornamental ironwork and the other side for the manufacture of wire fencing and a general wire fabricating business, while the center will house a complete modern plant for the fabrication of steel for use in the erection of buildings, bridge construction and other structural purposes.

The first train carrying passengers through the new tunnels of the Pennsylvania Railroad from Harrison, N. J., under the Hudson River, thence under the city of New York and thence under the East River to Long Island City was run November 18, having on board James McCrea, president of the railroad company, and other officials and engineers. This great engineering feat is fast approaching completion. Long Island Railroad trains will be running under the East River in February or March and Pennsylvania Railroad trains under the Hudson River a few weeks later.

The Pryibil Balanced Elliptical Chuck.

An attachment for metal spinning and turning lathes to produce elliptical shapes, generally called an oval chuck, has been manufactured for some years by P. Pryibil, 512 West Forty-first street, New York City. Now the same maker is putting on the market an improved form of this device, known as a self-balancing elliptical chuck. It was designed to eliminate the vibration which attended the running of the chuck as originally made and thus permit higher rates of speed. The chuck is made in two types. The heavier type, Fig. 1, is made for engine lathe work for turning steel, brass, &c. The other type, Fig. 2, is made for a speed lathe and is used for metal spinning, such as gold, silver, aluminum, copper, brass, zinc, &c.; also for hand metal turning and for wood turning, such as picture and mirror frames and other similar articles. Fig. 3 shows the chuck attached to a metal spinning lathe.

Details of the chuck are given in Fig. 4, from which the construction and principle of operation may be understood. Upon the front of the lathe spindle is mounted a false nose, *a*, to bring the chuck a certain distance from the front face of the headstock. On the false nose is screwed a cross arm, *b*, having two arms exactly at right angles. On the front arm are secured two sets of adjustable guides, *c* and *d*, which form sliding ways for the front and rear slides, *e* and *f*. On the rear arm of the cross arm *b* and at the outer ends are fitted two bearings in which rotate the adjustable cranks *g*, which are used to operate the front and rear slides, *e* and *f*.

On the front face of the front slide *e* is fitted a face plate or chuck arranged to support the work to be operated on. On the rear of the slide and at one end is fitted a cross slide with an adjustable gib, in which slides the crank pin block, which operates the slide back and forth in its ways. The rear slide *f* is also fitted with a cross slide similar to the one on the front slide and is made especially heavy to balance this front slide. On the front face of the crank *g* are fitted slides, *h*, supporting the crank pin, which are adjustable from zero to the maximum throw of the crank by a screw supported in the crank *g* and engaging in a nut on the crank pin slide *h*. On this screw spindle is fastened a double pinion which engages with a bevel gear, *i*, which has a bearing exactly in the center of the crank *g* and is securely fastened to the spur gear *j*. On the rear of the crank *g* are attached spur gears, *k*, which form the driving gears for the front and rear slides. The gears *j* alter the throw of the crank pins.

To the front of the headstock is screwed a bracket, *l*, having a bearing, the center of which is exactly in line with the lathe center. In this bearing is rigidly secured a spur gear, *m*, which engages with the driving gears *k*. Between the toothed part of the gear *m* and the end of the bracket *l* is a spur gear, *n*, which is loose on the gear *m* and engages with the adjusting gears *j*. Engaging with the loose spur gear *m* is another spur gear, *o*, which is secured to a miter gear, and both rotate together in a bearing on the bracket *l*. The miter gear *p* engages with another miter gear fastened to an adjusting screw supported in bearings on the bracket *l*. This screw is used for adjusting a nut, *q*, to which is attached a pointer, which indicates on a scale fastened to the bracket *l* the amount by which the crank pin is set out from its zero position, or, in other words, the throw of the crank pin. The crank *r* turns the screw and through the gearing alters the throw of the crank pin. The two taper pins shown holding the cranks *g* to the cross arm *b* are only inserted when removing a chuck from the lathe to keep the gears in their proper relation.

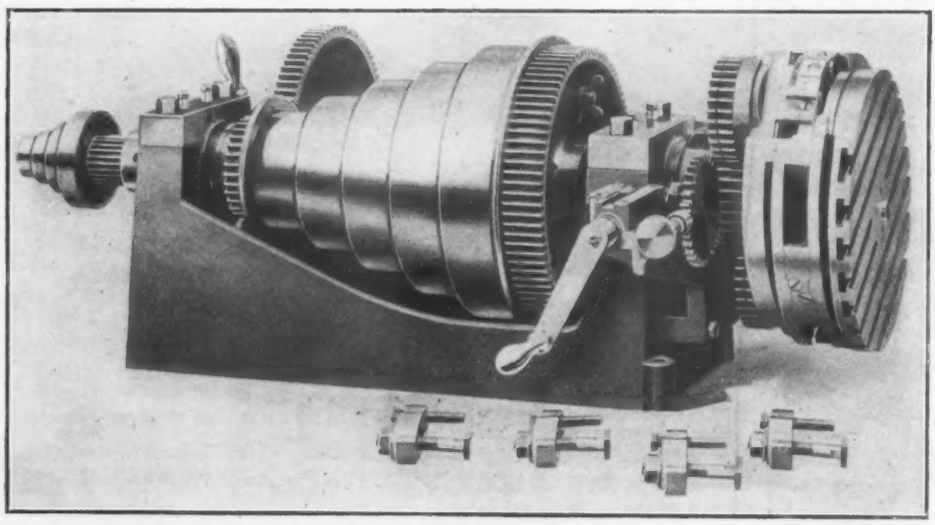


Fig. 1.—The Balanced Elliptical Chuck for Engine Lathes Made by P. Pryibil, New York.

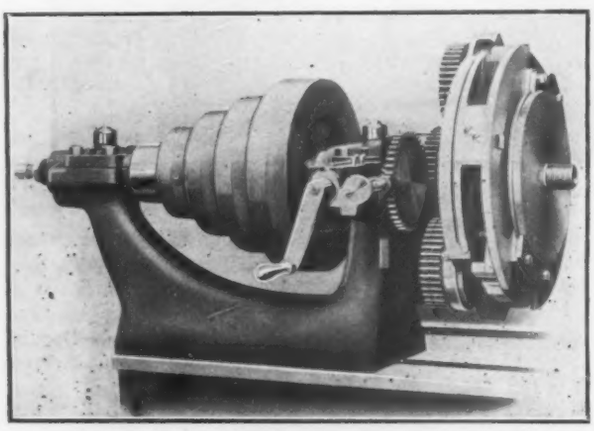


Fig. 2.—The Chuck in the Form Used on Speed Lathes.

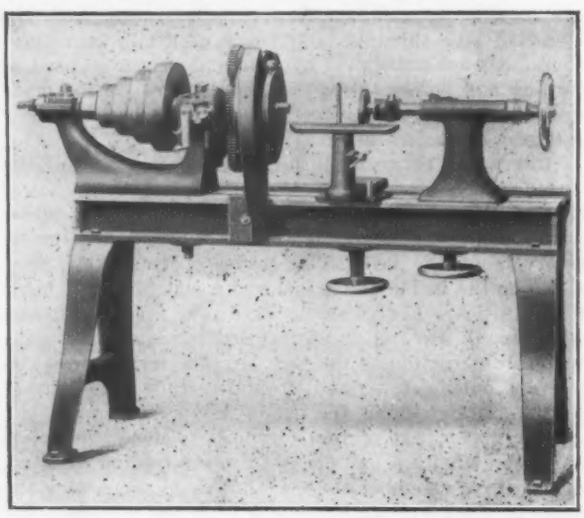


Fig. 3.—A Metal Spinning Lathe Equipped with the Chuck.

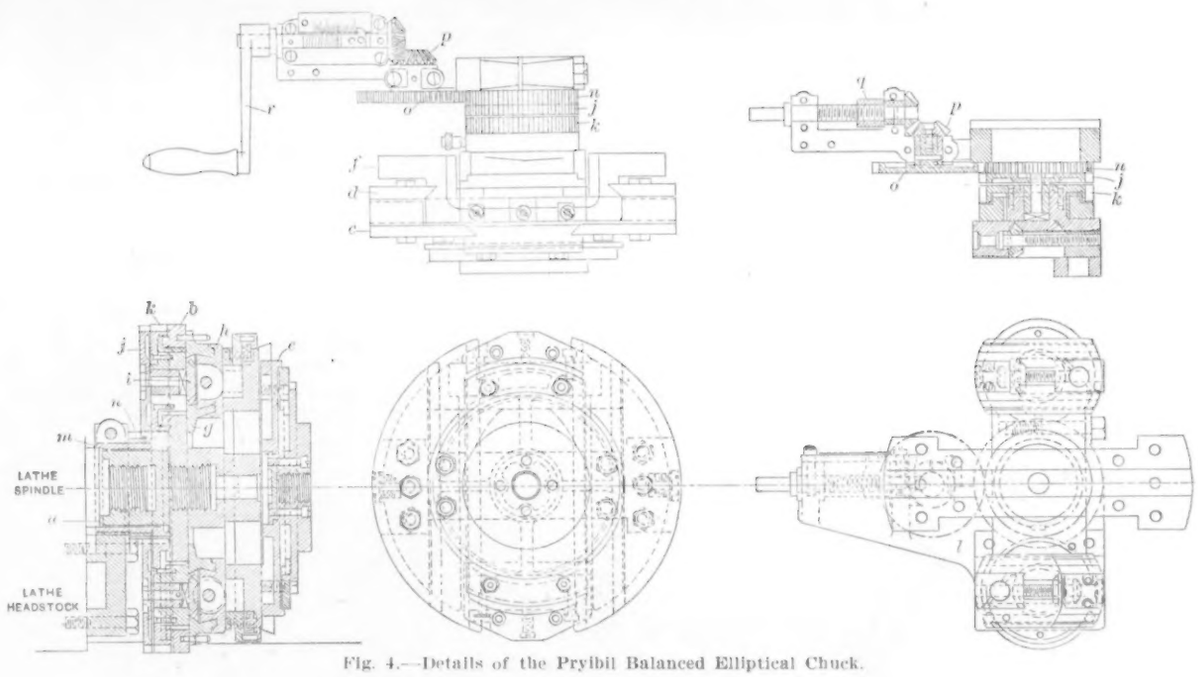


Fig. 4.—Details of the Pryibil Balanced Elliptical Chuck.

The operation of the chuck is as follows: When the lathe spindle rotates, the cross arm *b*, which is attached to the spindle, together with the entire mechanism mounted on *b*, also rotates. The driving gears *k*, which mesh with the stationary gear *m*, rotate with the cross arm about the center of the lathe spindle and, owing to the reaction of their teeth on the teeth of the stationary gear, also rotate on their own axes, and thereby rotate the crank *g*. When the crank pins are set at zero this rotation of the crank *g* does not affect the motion of the front and rear slides *e* and *f*, but when set at any other point the slides are driven back and forth by an amount equal to twice the distance of the crank pin from the center of the crank in its zero position. A tool set at any point on a horizontal line passing through the center of the lathe spindle will describe a circle on the front face of the front slide, when the crank pin is set at zero, but when the crank pin is at any other point of its throw the tool will describe a perfect ellipse, having a difference between its minor and major axes equal to twice the distance of the crank pin from the zero position. This difference is indicated directly on the scale attached to the bracket.

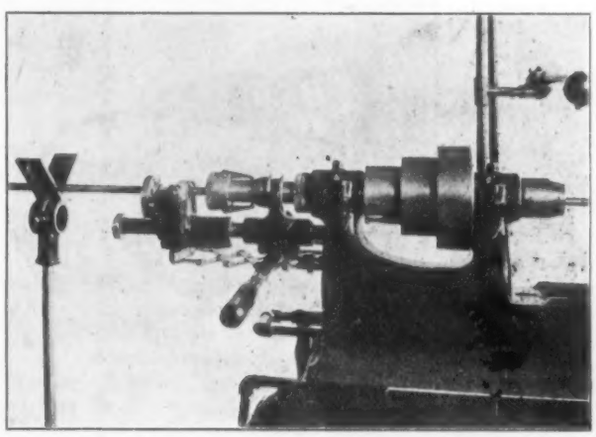
The adjustment of the throw of the crank pin can be effected either while the chuck is rotating or at rest by simply turning the hand crank, which through the miter gears *p* and the spur gear *o* causes the spur gear *n* to rotate and operate the adjusting gears *j*, which in turn operate the bevel gears in crank *g*, turning the screw which operates the crank pin and alters its throw. The rotation of the chuck does not affect the adjustment of the crank pin, as the gears *j* simply roll on the gear *n*, without causing it to rotate. The balancing of the chuck is attained by setting the cranks so that the front and rear slides are both driven toward or away from the center at the same instant.

A New Wells Screw Machine Wire Feed.

An improved form of wire feed has been developed for the hand screw machine made by the F. E. Wells & Son Company, Greenfield, Mass. The important advantage of this wire feed is that one lever is sufficient for its manipulation, and when the two feed fingers which grip the stock are adjusted to the size being handled they will feed the bar the whole length. It is not necessary to fasten a dog or other device to the stock, as is required with the ordinary wire feed.

The movement of the one lever referred to opens the chuck, moves the stock forward and closes the chuck again, all as quickly as a man can move his arm out and back. The two feed fingers work with a cam motion, so that when the lever is pulled forward they swing in such a way as to bring them closer together. This makes them bind on the stock and in that way pull it forward the required distance. Moving the lever back after the stock has been pulled forward opens the fingers and causes them to move back, ready to take a new hold on the stock; at the same time it tightens the chuck on the spindle for holding the work. The "lazy tongs," or "Jacob's ladder," construction is employed simply to give greater range of movement to feed the stock without having to move the lever so often.

The disk on the rear of the attachment is a guide for the stock and can be adjusted for different sizes. It is first turned so that the proper size hole is in line with the spindle. The stock is then placed in the spindle and



The New Wire Feed for Hand Screw Machines Made by the F. E. Wells & Son Company, Greenfield, Mass.

when the lever is pulled forward until the chuck is open, the feed fingers are adjusted against the stock until there is sufficient tension to move the stock forward when the lever is operated. This is all that is necessary to adjust the wire feed, and after it is once set for a certain size of rod the operation of the lever as described is all that is necessary.

The largest stock that can be taken is ⅞ in., and the length of feed for one movement of the lever is 4 in. All in all, the construction is very novel and the device is exceedingly quick in its operation. An important consequence of this is that small work in moderate quantities can be done cheaper with unskilled labor than on an automatic machine. The lathe on which this is applied is similar to the one described in *The Iron Age*, October 3, 1907.

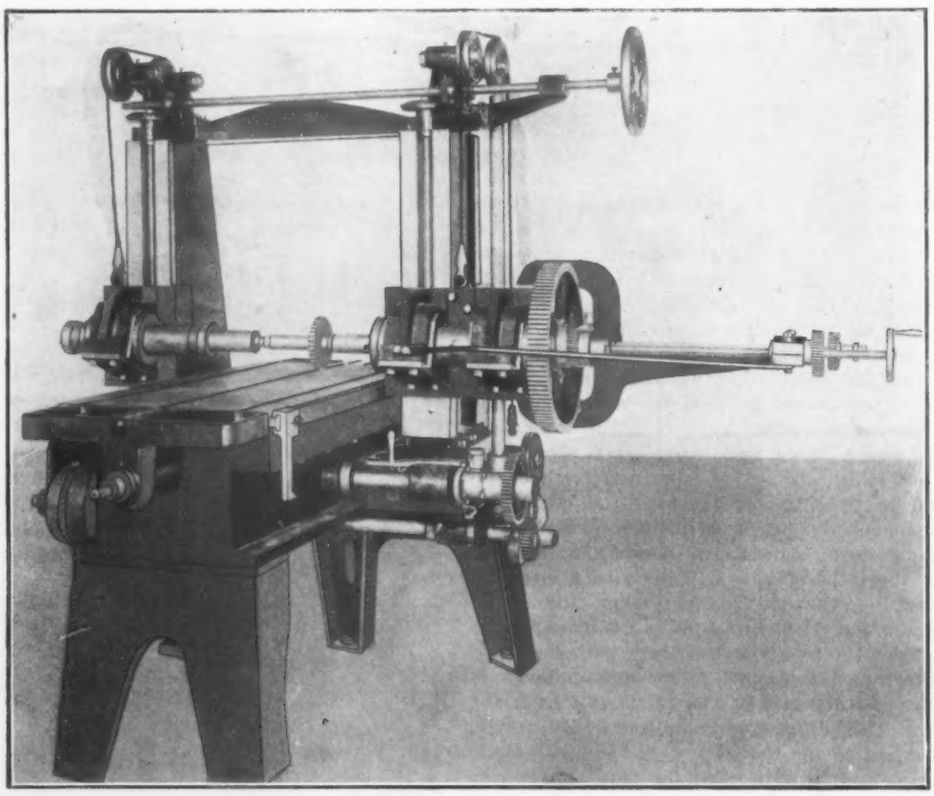
The Cincinnati Combined Milling and Boring Machine.

Something of a novelty in the line of heavy duty combination tools is a combined milling and boring machine which is a new product of the Cincinnati Punch & Shear Company, Cincinnati, Ohio. It is heavy, compact and powerful. One of the first advantages claimed for it by its builders, who have experimented with it for several months in its different capacities and for the regular shop requirements, is the ability to mill and bore cylinders up to 20 in. in diameter without resetting; also the cutting of gears up to 22 in. in diameter straight, and by swiveling the dividing head, gears as large as the machine will accommodate can be milled. Another advantage claimed is the ability to return the table without stopping the feed, which in other milling machines it is necessary to do.

In the operation of milling the cast steel thrust sleeve which holds the cutter gives a firmness and rigidity not attained, it is claimed, in other machines of a similar character. To insure this absolute rigidity and accuracy in the machine, the cross heads are provided with bearings on the front, sides and back of the housings, with steel gib adjustment which permanently locks or fixes them.

All gears are machine cut. For boring and milling boxes such as on shears, rolls, automobile engine work, gas engines, &c., the possibilities of the machine are especially pronounced, minimizing time and insuring accuracy in all details. The machine is also admirably adapted for finishing plungers. The double boring head on the feed side has a steel sleeve running in a cast iron box with solid phosphor bronze thrust ring sleeve adjustment on the end with double lock nut which prevents any loose motion of the feeding parts.

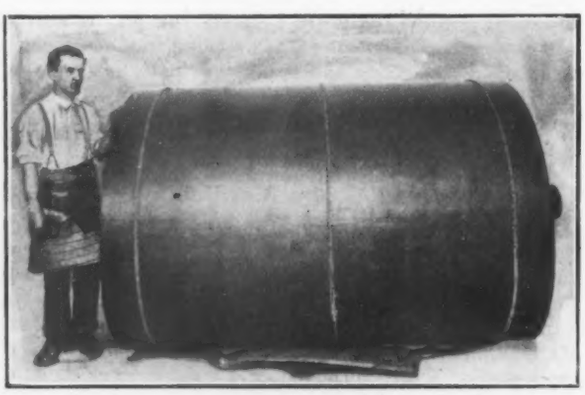
In a series of tests during which all classes of milling, boring and key seating incident to the requirements of the shop were conducted through a period of several months, the minimum saving over the time usually required for the several different operations on separate machines was figured as from 50 to 75 per cent. The machine is back geared, has a three-step cone driving pulley, taking a 3-in. belt, and with a two-speed friction countershaft has 12 speeds. The heads are counterweighted. The table has an automatic knockout for its feed and a feeding movement of 48 in. The boring feeding movement is 24 in. The machine is furnished with a standard boring bar and milling arbors. It may be equipped also with a universal dividing head of 20-in. swing. The distance between the housings is 28 in. and the maximum hight under rail is 28 in. The net weight is about 6000 lb. The extreme floor space required is 108 in. wide by 72 in. long, and the hight is 78 in.



The New Combined Milling and Boring Machine Built by the Cincinnati Punch & Shear Company, Cincinnati, Ohio.

The Largest Leather Belt.

The largest and most expensive leather belt for power drive ever made was recently shipped by the Charles A. Schieren Company, 37 Ferry street, New York, to the Great South Lumber Company, Bogolusa, La. The belt is a Duxbak waterproof, and it is 243 ft. long, 6 ft. wide and three-ply thick. The hides of 540 steers were utilized to make the belt and it was tanned in the Bristol, Tenn., plant of the Charles A. Schieren Company and finished in the New York plant. The belt will be called upon to deliver between 1600 and 1700 hp.



The Largest Leather Belt, a Feat of the Charles A. Schieren Company, New York.

As the purchaser was in urgent need of additional power equipment, directions were given that the shipment be made by express, and this resulted in the pay-

ment of the largest express charge on a single belt on record. The belt cost more than $5800 and the expressage amounted to exactly $243.07. This belt, the Charles A. Schieren Company claims, is absolutely waterproof and, as it is to be used in an extremely swampy section of the lumber producing district of Louisiana, leather belting people will watch with interest the service it gives.

The Amsler Hot Blast Stove.

This stove is of the three-pass central combustion chamber type and is a modification of the Massicks & Crooke stove of English invention. The original English design provided that the masonry be bonded together for all the passes. The crown was built solid, with flues

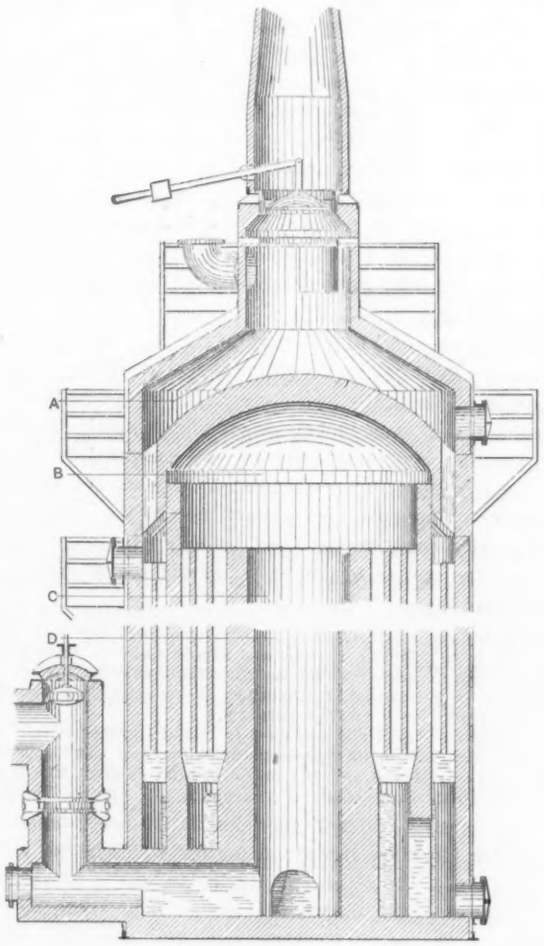


Fig. 1.

leading through it from the outside, or third, pass, nearly horizontally to the chimney. The uneven expansion and contraction in the inner and the outer passes was such that the brickwork rapidly tore itself to pieces. This design was changed by the American agents, McClure & Amsler. Their improvements included making the three passes independent of each other so that the difference in temperature of these passes was provided for by allowing each to expand by itself. The flues in the crown were replaced by using two crowns, one on the intermediate wall and one on the outer wall, so that the outer or third pass communicates by means of the space between the crowns with the chimney. It is in this shape that the Massicks & Crooke stove is being used at present in the most important installations.

In the Amsler improved hot blast stove, shown in sections in Figs. 1 and 2, the English crown is retained only in the particulars that very short and vertical flues are required through it and the inner or combustion chamber and the intermediate wall are allowed to expand and contract by themselves, the latter making a slip joint in the crown.

The stove consists of the usual air tight steel shell, with cold blast and gas inlets and hot blast and chimney outlets, cleaning doors, &c. The masonry is arranged in three vertical cylindrical walls, with checker work between them, so laid that they are entirely separate from each other. The two inner cylinders are open at the top, but the outer one is provided with a double dome, with vertical flues through the lower one to the passage between the domes. This passage leads to the chimney. The intermediate wall is extended up to make a slip joint with the lower dome by means of the recess there provided. The checker work in the passes is built independently of the walls, but is substantially bound together.

By this construction the intermediate wall, having no weight but its own to carry, is made lighter, permitting of increased heating surface in the same diameter of stove. The thrust of the dome on the inner wall of the old design is done away with. The dome is carried on the outer wall, so that it bears against the shell, and the arch thrust is taken up directly by the metal instead of being transmitted through the checker work of the outer pass. It is possible to construct the masonry for this stove almost entirely of standard 9-in. shapes, an important item in the cost of construction.

At the base of the stove radial walls are provided in the space under the second and third passes. These are built up to the checker work and insure an even distribution of the descending gases to the third or outer pass. This prevents the formation in the third pass of hot flues, which rob the colder ones of the hot gas and produce the " hot side." Attention is also called to the fact that the cold blast is introduced directly under the chimney valve and is directed upon a cast iron baffle

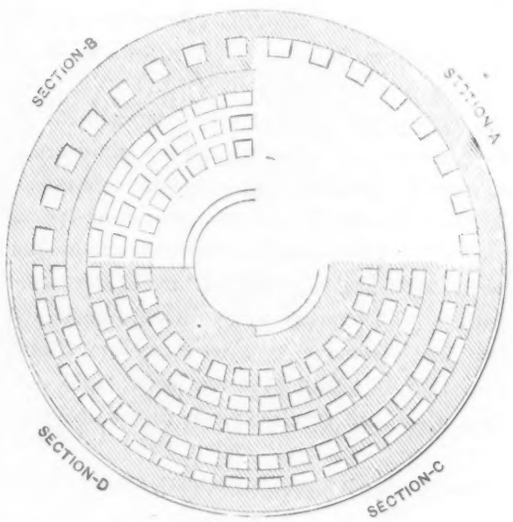


Fig. 2.

Vertical and Horizontal Sections of Amsler Hot Blast Stove.

plate at a tangent, so that the force of the blast is taken up and erosion of the masonry is avoided.

Three of these stoves 18 x 75 ft. are successfully furnishing hot blast for a 17 x 75 ft. furnace in southern Ohio. The plant has been in operation for two years. A similar plant is in course of erection in the same district. Walter O. Amsler, Pittsburgh, Pa., the designer and patentee of this stove, is a son of the late Carl Amsler, a pioneer metallurgical engineer in the iron industry.

In anticipation of a possible natural gas shortage this winter the United Engineering & Foundry Company, Pittsburgh, has placed with Tate, Jones & Co., Inc., Pittsburgh, a contract for equipping its three open hearth steel furnaces and its two annealing furnaces with oil burning appliances. These will be so installed that when natural gas is available it will be used exclusively, but in the event of a gas failure the oil equipment will be immediately ready for use, and with a supply of 40,000 gal. of oil always on hand the company is sure of no shut-down on account of fuel shortage.

THE IRON AGE

Established in 1855.

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RICHARD R WILLIAMS, - - - - - - - - HARDWARE EDITOR

Publisher's Notice.

The David Williams Company yields to the tendency of the times toward specialization. Originally a hardware paper, established at a time when the manufacture of iron and steel in this country was so limited that American consumers drew the bulk of their supplies from foreign sources, *The Iron Age* took cognizance of and materially assisted in the development of the domestic iron and steel industry, so that its attention to the details of iron and steel production and the growth of the machinery trade became no less a feature of the paper than its cultivation of hardware interests. This led in the course of its growth to a distinct department devoted to hardware and another department handling the commercial and technical features of the iron, steel, machinery and miscellaneous metal manufacturing trades. The distinction between these departments has been so sharply drawn that for many years our subscribers have been furnished two papers in one. The separation has long been contemplated, but not until now has everything been in readiness for its occurrence.

Beginning with next week the two journals will work out their destinies separately. *The Iron Age* will continue and increase its attention to the iron, steel, machinery and miscellaneous metal manufacturing trades; *Iron Age-Hardware* will specialize in the broad hardware field, absorbing its contemporary, *Hardware*, which has latterly grown to a position of importance in this industry. The division thus made will not be absolute as to either paper, as *The Iron Age* will continue to pay some attention to hardware, but only in its wider aspects, while *Iron Age-Hardware* will give its readers a summary of the current commercial news of the iron and steel trades.

The distinctively hardware subscribers of *The Iron Age* (weekly) will receive regularly both this paper and *Iron Age-Hardware* up to the end of their respective subscriptions. Any other subscriber to *The Iron Age* (weekly), even though not in hardware lines, is entitled to request and receive *Iron Age-Hardware* to the end of his subscription, if he so desires.

The Consolidations and the Sherman Act.

The unanimous decision of the United States Circuit Court enjoining the Standard Oil Company from voting the stock of any of its subsidiaries and from engaging in interstate commerce in petroleum has raised questions that bear directly on the duration of present industrial prosperity. It may well be questioned, if any of the well-known consolidations of industrial companies could be acquitted of violation of the Sherman Anti-Trust act of 1890 if this decision is affirmed by the Supreme Court of the United States. And if the menace of prosecution hangs over every such corporation it is plain that enterprises of large scope must have written after them for some time a large interrogation.

For some years we have had from those high in authority a jumble of opinions concerning industrial consolidations. We have been told that there are "good trusts" and "bad trusts"; that while the latter would be rigorously pursued under the law the good ones need not fear. The decision made last week may not wipe out the distinction between good and bad consolidations so far as concerns their actual workings, but it leaves no room for distinction between legal and illegal ones—all are illegal.

The reasoning of the court is that a combination between competitors is a combination in restraint of trade because theoretically the elimination of competition restrains trade, even though practically it vastly increases it; and the combination of any two corporations though not competitors is a combination in restraint of trade because so long as they existed uncombined they were potentially competitors. And by way of further laying down the lines on which it interprets the Sherman act the court says:

> If the necessary effect of a contract, combination or conspiracy is to stifle, or directly and substantially to restrict free competition in commerce among the States or with foreign nations, it is a contract, combination or conspiracy in restraint of that trade and it violates this law.
>
> The parties to it are presumed to intend the inevitable result of their acts, and neither their actual intent nor the reasonableness of the restraint imposed may withdraw it from the denunciation of the statute.

No matter whether the elimination of competition actually increases trade; no matter whether the intent of the merger of several companies in one is proper, nor whether their regulation or restriction of trade be reasonable. No matter whether competitive conditions were vastly more harmful to the community than those which followed consolidation. The court finds that Congress intended to make all such consolidations illegal, and it so declares.

Time has not been sufficient for an analysis of the decision by legal minds to determine definitely its application. But meantime it is given out that this or that large corporation formed by the merger of competing companies will not be affected. Yet the language of the court is so sweeping that escape seems well-nigh impossible. The proposed copper consolidation, we have been told on one hand, is expected to improve conditions in the copper trade by better adjusting production and consumption and by maintaining prices affording a more even market and a fair profit. Yet the word has gone out since the Standard Oil Company decision that it will in no wise prevent the carrying out of the proposed deal. There might be something bewildering in such attempts to create assurance if they were not so much like views put out in the financial district on other occasions to soften the effect of a deeply significant development.

Perhaps the best assurance given the business community in the past week grows out of the fact that the consistent application of the Circuit Court decision to the consolidations would result in an impossible situation. Just what real help will come from that fact we have yet to see. The amendment of the Sherman act, which has long been discussed, and which even President Roosevelt advocated, cannot come too quickly to save the country from another period of agitation and unrest. But in what form and when will it be amended? How will members of Congress vote if they follow the sentiments of their constituents? It is common to say that this nation is great enough and wise enough to cope with any problem that touches deeply the general welfare. Yet such settlements often cost heavily. A fearful price had to be paid first and last for the establishment of the gold basis, when half the voters of the country went out into the wilderness after the prophet of free silver. We have an admittedly defective currency system to-day, yet no cure has been proposed that can command a majority vote in Congress.

The last Presidential campaign showed plainly the extent of popular feeling on the so-called trust issue. This is certainly a time when the consolidations are being judged by their fruits. If they have divided their economies with the consumer; if they have been fair to labor; if they have really conserved the market and helped to curb advances; if they have bettered the conditions existing under destructive competition—they have grounds to urge on which proper amendments should be made to the Sherman act. All the theoretical claims of benefits coming from industrial combines will count for nothing; the record of experience will supply the facts.

The Standard Oil decision with its sweeping provisions is little welcome when business is swinging into a period of splendid promise. Yet the pendency of the copper deal showed that public sentiment on this question is still unappreciated. And discipline by the courts may bring some results whose value will be more apparent with the lapse of time.

The Naval Repair Ship's Publicity Usefulness.

The Secretary of the Navy will ask Congress for a repair ship, equipped as a very complete machine shop and designed with the speed of the fastest of the battleships. The announcement will be of interest to American machine tool builders, not merely because of the opportunity for the sale of some of their products, but because such a ship would be a splendid floating exposition of American machinery. Accompanying the battleship fleet on all cruises, a model machine shop of large side would be opened to the inspection of all, just as visitors are made welcome to the battleships themselves. Attention has often been called to the need of such vessels if the great fighting ships are to be kept up to their maximum efficiency. It will probably be pointed out before the Congressional discussion of the necessary appropriation is concluded, that during the cruise of the fleet around the world the ships were found to be self-contained in this respect, meeting their own requirements so efficiently that the repair bill when they returned to their own yards was comparatively insignificant. Doubtless, however, the Navy Department is not thinking so much of a cruise in time of peace, but of the possible day when repairs may be expected to assume large proportions after an engagement with an enemy's ships. Then the heavy tools of the navy yard shops would be required, if the fleet had with it no floating shop of similarly efficient equipment, and consequently it might be impossible to put the vessels in complete fighting trim again. The machinery builders would be well advertised in time of peace, while the navy would not be averse to assisting in securing publicity for one of the nation's great industries.

The Present Scarcity of Machine Tools.

The prevailing scarcity of some classes of machine tools is disconcerting to both manufacturers and dealers, as, regardless of how anxious a firm might be to get as much business as it can handle, it is most distressing to be unable to supply the wants of a prospective customer. Naturally the thought of the trade at such times turns toward the necessity of taking steps to prevent a recurrence of such conditions, hence discussion arises as to the cause of the present state of affairs. Manufacturers assert that many dealers are prone to order more machines than they actually need at times when machine tools are in great demand, and when a slump in business comes orders are often canceled and the makers are left with the tools on their hands. Improvements in most classes of machine tools are made so frequently that a machine that has been in storage for any length of time decreases in value. Consequently many manufacturers keep close to the demand in the matter of production. Dealers have their grievances, however, claiming that machine tool makers at times misrepresent conditions in their shops and hold back on dealers' deliveries with a view to giving preference to orders which come direct from machine tool users.

The solution of this problem would seem to be a closer unity of interest between manufacturers and dealers. If the latter would indicate their exact needs and give the manufacturers an idea as to the number of live inquiries they have on hand the machine tool makers would probably be better able to anticipate the demand. On the other hand, manufacturers might arrange to accept orders from their regular customers in sequence, so that charges of unnecessary favoritism would be obviated.

The Potentiality of Small Streams.

The vast possibilities of power from the great rivers and falls of the country are well understood and highly appreciated, but the potential assets contained in the little streams are less generally realized. A New England newspaper has compiled some statistics of one of the smallest of the streams which have been utilized for power, namely, the Blackstone River, which has its source at Worcester, Mass., and its mouth at Providence, R. I. It finds that with a drainage area of only 458 sq. miles the stream produces 23,000 hp., or 50 for every square mile, though the head is never great, the total fall being hardly more than 600 ft. Figured out on the basis of capitalization, $25,000,000 is represented in this water power.

The claim is made that nowhere else in the world is running water so completely harnessed. Yet there are innumerable streams of equal or greater power which remain to be developed. The work will hereafter be better done; the science of hydraulic engineering has grown wondrously in its comprehensiveness and exact knowledge, so that future developments will net much larger percentages of applied power as compared with the theoretical efficiency of a privilege. The Blackstone River would be giving much greater results from the same

drainage area if the men who designed and installed the water wheels had had the advantage of present day hydraulic science.

Machine Tool Prices Advancing.

A radical readjustment of prices has begun among the lathe builders, which amounts to a considerable average increase, though one not to be reckoned in any given percentage. The reason given is that during the two years of poor business many improvements were made on lathes. The old prices were maintained, but were not increased to meet the improvements and the greater costs which resulted. Now the necessary corrections in prices are being made, to bring them to where they were two years ago. In other words, the additional cost is being put into the selling price.

What amounts to another increase in the engine lathe trade, as well as with all other lines of machinery, is the more rigid attitude of manufacturers and dealers as to concessions, especially in freights. Still another factor is the closer scrutiny of used machinery taken by dealers as part payment in the sale of new tools. The upward tendency is everywhere evident in the machinery market. The 10 per cent. advance in the price of sensitive drills is the most radical, taking it as a line, though individual manufacturers of other kinds of machine tools have increased their lists fully as much. From now on it is expected that the average level throughout the industry will rise to a point well above the highest precedent.

The Leather Belting Manufacturers' Association.

The annual meeting of the Leather Belting Manufacturers' Association was held at the Hotel Astor, New York, November 17, with a full attendance. Subjects of general interest were taken up relating to the freight classification of leather belting, the deep waterways of the Atlantic seaboard and a credit bureau. A general discussion of matters affecting business matters was held.

The officers elected for the ensuing year are as follows: President, Charles T. Page; first vice-president, F. A. M. Burrell; second vice-president, Milton H. Cook; secretary and treasurer, George H. Blake.

A luncheon was held in the Hotel Astor, in which the participants represented the following belt manufacturers: Akron Belting Company, Alexander Bros., C. W. Arny & Son, Baltimore Belting Company, Bay State Belting Company, Bickford & Francis Belting Company, Bonner & Barnewall, Inc., Bradford Belting Company, Chicago Belting Company, Chicago Rawhide Mfg. Company, Detroit Oak Belting Company, Fisher Leather Belting Company, Graton & Knight Mfg. Company, Hartley-Rose Belting Company, Kelton-Bruce Mfg. Company, Moloney Belting Company, Norwich Belt Mfg. Company, Page Belting Company, N. Palmer & Co., George Rahmann & Co., Republic Belting Company, J. E. Rhoads & Sons, Sadler & Haworth, Charles A. Schieren Company, Schwartz Belting Company, Shultz Belting Company, Southern Belting Company, Ulmer Leather Company, Union Belt Company, I. B. Williams & Sons, Jewell Belting Company.

The H. J. Martin Forging Company, Indianapolis, Ind., recently organized for manufacturing drop forgings, announces that its new plant is now under roof and some of the machinery installed. It will be equipped with 12 steam drop hammers, ranging from 1000 to 2000 lb. each, with presses and the other necessary tools to operate this number of hammers. The machine shop will be 50 x 200 ft.; forge shop, 60 x 150 ft., and boiler room, which is of fireproof construction, 40 x 75 ft. The machine shop is of slow burning mill construction. The company reports a gratifying volume of business on hand to start with.

The Railroad Club of New York.

At the annual meeting of the Railroad Club of New York, which is composed of railroad men and machinery and supply men interested in railroad affairs, which was held November 19, at the Engineering Societies Building, H. McL. Harding, vice-president of the International Lecture Institute, gave an interesting address on "Mechanical Transshipment of Railway and Water Borne Freight, with Special Reference to the Port of New York." During the course of his talk Mr. Harding had this to say:

We have many companies in the United States engaged in the manufacture of conveying machinery, and by the combination of well known methods of different manufacturers which have been proved to be successful in handling bulk material, this same machinery by being properly designed and installed can also handle miscellaneous package cargoes and produce an almost equivalent economy as in the handling of ore and coal, which is from 30 cents per ton by wheelbarrows to the fraction of a cent by mechanical methods.

This combination of machinery in connection with electricity will raise the load from the hold of the steamer, carry into any story of a warehouse or deposit it upon any part of an open or closed pier, or will transport and deposit it upon a team truck and do any or all of this without rehandling. It will also take loads from the drays and deposit upon the floor of the pier, or convey directly into the hold of the vessel. This can now be done at an expense of about a few cents per ton.

The club elected as its president W. G. Besler, who is vice-president and general manager of the Central Railroad of New Jersey.

Trade Banquets.

On November 6 the Ferro Machine & Foundry Company, Cleveland, Ohio, gave a banquet to its foundry organization to celebrate the new record made that day for the production of automobile cylinder castings. After the banquet the party went to the theater. A maximum daily tonnage was established several months ago and this was reached on that day. The day's production is claimed to be the highest ever turned out by any foundry in the world on this type of casting. These parts are recognized as being the most difficult castings to make of all that enter into an automobile motor. The Ferro Company will turn out a larger output for the season of 1910 than for any previous year. By enlarging all departments the factory capacity has been increased over 200 per cent. This increase has been made necessary by the large volume of business in 1909, and the number of orders already received for 1910.

The "first family dinner" of the Parker Boiler Company was held at the Engineers' Club, Philadelphia, November 19. The heads of all departments of the business were present and, together with several guests, kept the party entertained with addresses and anecdotes. H. E. Snyder was master of ceremonies. Following the dinner a meeting of the employees was held with J. C. Parker as chairman. The subject was "Co-operation" and many valuable suggestions were offered by the various men.

The Delaware River Steel Company has been formed by the interests which recently purchased the plant of the Tidewater Steel Company, Chester, Pa. The capital of the company will be $500,000, of which $300,000 is paid in. The officers of the company are as follows: President, Charles Hart, Coatesville, Pa.; treasurer, Myron A. Wick; secretary, R. H. McCurdy. The last two are both of Youngstown, Ohio.

Four suits have been brought against the Midvale Steel Company in the United States Court at Pittsburgh by the Krupp interests of Essen, Germany, involving patents on the process of making armor plate. It is alleged that the defendant infringes these. The right to manufacture armor plate in this country by the Krupp process, it is said, is held by the Bethlehem Steel Corporation and the United States Steel Corporation.

The Harbison-Walker Refractories Company.

The seventh annual statement of the Harbison-Walker Refractories Company, Pittsburgh, presents the following combined profit and loss account for the year ending September 30, 1909:

Earnings, after deducting $253,672.51 expenditures for all ordinary repairs and maintenance, which covers depreciation of plants		$1,526,878.89
Less extraordinary expenditures, being repairs and improvements, increasing the capacity and efficiency of the works	$95,764.25	
Charged off for the depreciation of mining and tram outfits	38,048.89	
Charged off for depletion of clay, coal and ganister properties	16,472.51	
		150,285.65
Net profit for the year		$1,376,593.24
Deduct interest on bonds	$119,187.50	
Dividend on preferred stock (6 per cent.)	575,379.00	
		694,566.50
Net surplus for the year, after charging interest on bonds and dividends on preferred stock, now carried to surplus account		$682,026.74

The balance sheet as of September 30, 1909, is as follows:

Assets.		
Property account		$28,716,152.14
Betterments, completed		1,136,195.74
Betterments, uncompleted		238,809.21
Deferred charges to future operations		288,786.49
(Includes clay, coal and ganister outfits ($217,986.01), advanced royalties, stripping, prospecting, uncompleted extraordinary repairs, &c.)		
Inventories at cost	$1,577,317.46	
Accounts receivable	1,227,864.40	
Bills receivable	33,008.78	
Cash	566,525.53	
Investment of reserves	182,000.00	
Own bonds purchased by company and held in treasury	267,000.00	
Other securities	247,390.33	
Total		4,101,106.50
		$34,481,050.08
Liabilities.		
Preferred stock	$9,606,000.00	
Common stock	18,000,000.00	
Bonds, total issue	$3,500,000.00	$27,600,000.00
Less purchased and canceled as per sinking fund requirements	1,235,000.60	
		2,265,000.00
Reserves:		
Bond interest and taxes (accrued but not yet due)	$50,897.15	
Reserve to cover premium at redemption of bonds	9,131.12	
Clay, coal and ganister properties depletion fund	125,706.12	
Sundry reserves	213,620.27	
Accounts payable	$302,607.54	399,354.66
Pay rolls	62,099.19	
		364,706.73
Surplus		3,851,988.69
Total		$34,481,050.08

President H. W. Croft make the following accompanying statement: "In our last statement we mentioned that ground would soon be broken for a plant at Birmingham, Ala. This plant, having a capacity of 40,000 fire clay, silica and magnesia brick per day, has since been completed and is now running. It is of fireproof construction and embodies all of the up-to-date ideas in the manufacture of hand-made brick."

The Dunderland Iron Ore Company.—A London news dispatch states that what appears to be the last stage in the career of the Dunderland Iron Ore Company is indicated in its current report. This was an ambitious project formed seven years ago, with $10,000,000 capital, to develop iron ore deposits in Norway by the Edison concentrating process in perfecting which it is said that over $2,500,000 was spent. Some of the best known iron and steel men in England became directors. Although a further $3,150,000 was raised by debentures and loans, and expended, the works have had to be shut down. The original process has proved a practical failure and, by court order, unless further capital can be raised, the assets will have to be sold at auction, with an upset price of $550,000. A final attempt at rescue is, however, proposed in the creation of $1,350,000 new bonds, to be offered at 85, to discharge obligations and leave about $385,000 for testing new processes.

Customs Decisions.

The Board of United States General Appraisers has handed down decisions in many customs appeals related to the metal industry.

Steel Floor Plates.

Henry Lund & Co. have been sustained in their contention for lower duty on steel plates used as flooring in boiler rooms. The articles are made with one side checkered to prevent slipping. Duty was assessed at the rate of six-tenths of 1 cent a pound under the tariff of 1897 as being "plate steel." The importing firm, in its appeal to the board, allege that the tax should be at the rate of four-tenths of 1 cent per pound as "steel plates not specially provided for." This claim the tribunal sustains.

Feed Pump Fittings.

A controversy between the Government and F. B. Vandegrift & Co., regarding the classification of steam cylinders, valve casing covers and columns for donkey feed pumps has been decided in favor of the Treasury Department. The collector based his assessment of a 45 per cent. duty on the merchandise on the ground that it fell within the paragraph for "manufactures of metal." On the other hand, the importers claimed that the merchandise is dutiable under the provision in the law for "all other iron or steel tubes," or at the appropriate rate according to value per pound under paragraph 135, which provides for specific duties on various kinds of machinery. General Appraiser Fischer, in his decision overruling the protest, says that the case has been submitted without the introduction of any testimony, and that on the record before him the board would not be warranted in disturbing the return made by the collector.

Metal Box Binding.

Another issue disposed of by the board unfavorably to the importers has to do with the classification of narrow tin strips intended for use on the edges of wooden boxes. The strips were entered by J. T. Steel & Co., who claimed duty at 10 per cent., the claim being based on the ground that the merchandise is "waste," as that word is used in the tariff. The Treasury officers held the strips to be superior to waste, and therefore levied the regular duty called for by paragraph 193, which is 45 per cent. In denying the contention of the importers the board's decision says that the articles are complete, cut or sheared from large pieces, and are intended, and are, of commercial use for the variety of purposes for which narrow strips of tin plate are required. Under these circumstances the protest is overruled.

Metal Wares Coated with Enamel Paint.

In finding against a claim filed by Butler Brothers the board rules that metal articles coated with enamel paint are not dutiable under paragraph 159 as "enameled metal articles," with a rate of 40 per cent. In order to be so dutiable the board holds that the articles must have been enameled or glazed with vitreous glasses. The articles forming the basis of the protest are tin comb cases. They were classified under the general provision for manufactures of metal and this return the board affirms.

The board has overruled claims filed by J. G. Braun regarding duty on drop forged nuts and rivets.

The Youngstown Sheet & Tube Company, Youngstown, Ohio, has prepared a card, 5 x 9 in., giving a table showing the weight per square foot and per sheet of standard sizes of galvanized and black sheets. It comprises 25 sizes of sheets, from 24 x 78 in. to 36 x 120 in., and 10 gauges, from No. 16 to No. 30 United States standard. The figures for black sheets are printed in black ink and for galvanized in red ink, thus facilitating reference to the information desired.

CENSUS IRON AND STEEL SCHEDULES.

Text of the Special Schedules to Be Used for the Thirteenth Census.

WASHINGTON, D. C., November 23, 1909.—Through the courtesy of Director of the Census Durand and Chief Statistician Steuart the correspondent of *The Iron Age* is enabled to lay before its readers the text of the special schedules of inquiry formulated for the thirteenth census covering the iron and steel industry.

For convenience in gathering data the industry has been divided into four branches—namely, blast furnaces, steel works and rolling mills, tin plate and terne plate works and wire. These schedules, which will be presented to manufacturers by special agents soon after January 1, are supplementary to the general schedule for manufactures, a description of which has appeared in the columns of *The Iron Age*, and embrace certain additional details regarding each branch of the industry for which they have been prepared. As in the case of the general schedule, the data supplied will relate to the calendar year 1909, or the business year of each establishment most closely conforming thereto.

Special care has been exercised by the director and his assistants to eliminate from the supplemental schedules questions of an inquisitorial character, which have been included in prior censuses and have caused much criticism by manufacturers, resulting in many instances in the failure of the bureau to secure the desired data. Representatives of the bureau have conferred with the officers of the American Iron & Steel Association, the United States Steel Corporation and other manufacturers concerning the details of the schedules with a view to eliminating unnecessary or objectionable inquiries and for the purpose of keeping abreast of the technical development of the various branches of the industry. Many suggestions have been received and adopted, and it is believed that manufacturers will regard the new schedules with much favor, and will take all necessary pains to supply the information requested. The text of the schedules is as follows:

Iron and Steel Blast Furnaces, 1909.

Name of establishment.....
Name of owner.....
Location of furnace plant { State..... County.....
{ Post office.....

(Establishments operating blast furnaces, steel works and rolling mills, wire works, or tin plate and terne plate works as departments of one establishment, should include all departments in one general schedule, with supplemental schedules for the respective departments.)

1. Materials used: Give the quantity and cost of the principal materials used, as indicated. If the iron ore, coal, limestone, coke, &c., used are from mines and quarries or coke ovens operated by the establishment reporting, the cost should be based on the average price of these materials for the vicinity of the blast furnaces.

The total cost of all materials, including fuel, mill supplies, freight, &c., should appear only in the General Schedule for Manufactures.

Kind.	Quantity. (Tons of 2240 lb.)	Cost.
Domestic iron ore, including manganese ore, manganiferous iron ore, zinc residuum, &c.	.....	$.....
Foreign iron ore (from outside the United States), including manganese ore, manganiferous iron ore, zinc residuum, &c.	.....	$.....
Fluxing material, including limestone, dolomite, oyster shells, &c.	.....	$.....
Mill cinder scrap (not including runner or other scrap produced by the furnace reporting), scale, &c.	.....	$.....
Fuel for smelting:		
(a) Coke	.....	$.....
(b) Coal	.....	$.....
(c) Charcoal..... Bushels.....	.....	$.....

2. Products: Give the selling value or price at the furnace and account for all products and by-products manufactured during the year (whether sold or not). Separately report the quantity (tons of 2240 lb.) and value of the products, as indicated.

The total value of products in this schedule must agree with the total in the General Schedule; except that for establishments reporting on two or more supplemental schedules and one general schedule the aggregate value of products in the supplemental schedules must agree with the total in the General Schedule.

Kind.	Total production. Tons.	Produced for consumption in this establishment. Tons.	Produced for sale. Tons.	Produced for sale. Value.
Pig iron, including ferromanganese, spiegeleisen, ferrosilicon, other ferroalloys, direct castings, &c.:				
Coke pig iron	.....	.....	.....	$.....
Raw coal and coke mixed pig iron	.....	.....	.....	$.....
Anthracite coal and coke mixed and anthracite alone pig iron	.....	.....	.....	$.....
Charcoal pig iron	.....	.....	.....	$.....
Charcoal and coke mixed pig iron	.....	.....	.....	$.....
Total pig iron				$.....
Slag cement..... Barrels of 380 lb.				$.....
Slag				$.....
All other products, including castings made in foundries directly in connection with the blast furnace establishment				$.....
Amount received for custom work and repairing				$.....
Total				$.....

3. Production of pig iron by grades:

Grade.	Produced for sale. Tons.	Produced for consumption. Tons.	Total. Tons.
Bessemer (from 0.04 to 0.10 per cent. in phosphorus)	.....	.....	.....
Low phosphorus (below 0.04 per cent. in phosphorus)	.....	.....	.....
Malleable Bessemer	.....	.....	.....
Basic	.....	.....	.....
Foundry	.....	.....	.....
Forge or mill	.....	.....	.....
White and mottled and miscellaneous grades	.....	.....	.....
Castings made direct from the blast furnace	.....	.....	.....
Spiegeleisen (not less than 9 per cent. of manganese)	.....	.....	.....
Ferromanganese (45 per cent. and over in manganese)	.....	.....	.....
Ferrosilicon, including Bessemer ferrosilicon (7 per cent. and over in silicon)	.....	.....	.....
Ferrophosphorus	.....	.....	.....
Ferrotungsten, ferrotitanium and other ferroalloys..... (*Specify kind.*)	.....	.....	.....
Total pig iron	.....	.....	.....

4. Pig iron production—how handled:

Sand cast.....tons; machine cast.....tons; chill cast.....tons; delivered in a molten condition to Bessemer converters, open hearth furnaces, electric furnaces, cupolas, &c.....tons.

5. Furnaces, active, idle, building, &c.: Alternate stacks should be counted as two furnaces. If a furnace used two or more kinds of fuel during the census year, indicate the kind of fuel used when last in blast.

Blast furnace stacks:
(a) Number of complete stacks (do not include stacks rebuilding)
Daily capacity of each (gross tons)
(b) Active during the year—
Coke: Number..... Daily capacity of each.....
Raw coal and coke mixed: Number..... Daily capacity of each
Anthracite coal and coke mixed and anthracite alone: Number..... Daily capacity of each.....
Charcoal: Number..... Daily capacity of each.....
Charcoal and coke mixed: Number..... Daily capacity of each
(c) Electric plants for manufacture of pig iron, ferroalloys, &c.: Number of furnaces..... Daily capacity of each.....
(d) Completed during the year: Number..... Daily capacity of each
(e) In course of construction at end of year: Number.....
Daily capacity of each
(f) Rebuilding at end of year: Number..... Daily capacity of each.....
(g) Idle during the entire year: Number..... Daily capacity of each
(h) Abandoned or dismantled in the course of the year: Number..... Daily capacity of each.....
Number of blast furnace stacks operated with dry blast.....
Total production of pig iron in 1909 with dry blast, tons.....
Blast furnace gases, if used for power by establishment reporting:
Number of gas engines using blast furnace gases.....
Horsepower of each.....; total horsepower.....
In what department used? Rolling mill.....
Blast furnace.....
Granulated slag pits:
Number of granulated slag pits connected with blast furnaces
Annual capacity of these pits, in gross tons, of granulated slag
State the chief purpose for which the granulated slag is specially adapted
Longest blast:
Greatest number of days since construction that any one of your furnaces was in continuous blast (do not consider furnaces out of blast when banked)
Date of run from..... to.....
Average daily capacity of furnace, tons.....
Number of gross tons of pig iron made during this period.....
Number of times furnace was banked during the period.....
Number of days lost by being banked.....
Remarks

Steel Works and Rolling Mills, 1909.

Name of establishment .....
Name of owner .....
Location of works { State..... County.....
Post office.....

(Establishments operating blast furnaces, steel works and rolling mills, wire works or tin plate and terne plate works as departments of one establishment, should include all departments in one General Schedule, with supplemental schedules for the respective dpartments.)

1. Materials used: Give the quantity and cost of the principal materials used during the year, as indicated. The "ton" when used as a unit is the gross ton of 2240 lb. The total cost of materials, including fuel, mill supplies, freight, &c., should appear only in the General Schedule.

Kind.	Total quantity used (tons).	Produced by this establishment.	Purchased materials used. Tons.	Cost.
Pig iron	.....	.....	.....	$.....
Spelgeleisen, ferromanganese and all other ferro alloys	.....	.....	.....	$.....
Iron and steel skelp	.....	.....	.....	$.....
Iron and steel wire rods	.....	.....	.....	$.....
Scrap iron or steel, including old iron or steel rails			.....	$.....
Iron or steel ingots, blooms, billets, slabs, muck bar, scrap bar, rerolling rails and sheet and tin plate bars			.....	$.....
Domestic iron ore			.....	$.....
Foreign iron ore (from outside the United States)			.....	$.....

2. Products: Give the selling value or price at the works and account for all products and by-products manufactured during the year (whether sold or not). Separately report the quantity and value of the products, as indicated. The "ton" when used as a unit of measure, unless otherwise stated, is the gross ton 2240 lb. The total value of products in this schedule must agree with the total in the General Schedule; except that for establishments reporting on two or more supplemental schedules and one General Schedule the aggregate value of products in the supplemental schedules must agree with the total in the General Schedule.

Kind.	Total production. Tons.	Produced for consumption in this establishment. Tons.	Produced for sale. Tons.	Produced for sale. Value or price at works.
1. Steel ingots:				
Bessemer, including steel made in tropenas and all other converters	.....	.....	.....	$.....
Acid open hearth	.....	.....	.....	$.....
Basic open hearth	.....	.....	.....	$.....
Crucible	.....	.....	.....	$.....
Electric or electrically refined	.....	.....	.....	$.....
All other	.....	.....	.....	$.....
2. Direct steel castings:				
Bessemer, including steel made in tropenas and all other converters	.....	.....	.....	$.....
Acid open hearth	.....	.....	.....	$.....
Basic open hearth	.....	.....	.....	$.....
Crucible	.....	.....	.....	$.....
Electric or electrically refined	.....	.....	.....	$.....
All other	.....	.....	.....	$.....
3. Blooms, billets and slabs, including rolled forging blooms and rolled forged billets	.....	.....	.....	$.....
4. Muck and scrap bar	.....	.....	.....	$.....
5. Sheet and tin plate bars	.....	.....	.....	$.....
6. Skelp, including flue and pipe, iron and steel	.....	.....	.....	$.....
7. Wire rods	.....	.....	.....	$.....
8. Plates and sheets (not including black plates or sheets, for tinning, nail and tack plates, tie plates, fish plates, and armor plates)	.....	.....	.....	$.....
a. 16 gauge and heavier	.....	.....	.....	$.....
b. 17 to 24 gauge	.....	.....	.....	$.....
c. 25 gauge and lighter	.....	.....	.....	$.....
9. Black plates (or sheets) for tinning	.....	.....	.....	$.....
10. Nail and tack plates	.....	.....	.....	$.....
11. Rails, steel:				
a. Bessemer	.....	.....	.....	$.....
b. Acid open hearth	.....	.....	.....	$.....
c. Basic open hearth	.....	.....	.....	$.....
d. Iron	.....	.....	.....	$.....
12. Rerolled rails	.....	.....	.....	$.....
13. Rail fastenings, including splice bars and other rail-joints, tie plates, fish plates, &c.	.....	.....	.....	$.....
14. Structural steel, including beams, channels, angles, tees, zees, and other structural shapes:				
a Bessemer steel	.....	.....	.....	$.....
b. Open hearth steel	.....	.....	.....	$.....
c. Iron	.....	.....	.....	$.....
15. Bars and rods, not including wire rods or sheet and tin plate bars or splice bars	.....	.....	.....	$.....
16. Hoops, bands and cotton ties	.....	.....	.....	$.....
17. Car and locomotive axles	.....	.....	.....	$.....
18. Rolled steel car and locomotive wheels	.....	.....	.....	$.....
19. Cast iron car wheels	.....	.....	.....	$.....
20. Armor plates and gun forgings	.....	.....	.....	$.....
21. All rolled iron and steel products not otherwise enumerated (on this or other supplemental schedules)	.....	.....	.....	$.....
22. All forged, cast or other iron and steel products not otherwise enumerated	.....	.....	.....	$.....
23. Scrap iron or steel	.....	.....	.....	$.....
24. Copper rods .....tons 2000 lb	.....	.....	.....	$.....

Kind.	Produced for sale. Quantity. Tons, 2240 lb. unless otherwise stated.	Value.
25. Galvanized plates or sheets	.....	$.....
26. Bolts, nuts, rivets, forged spikes, washers, &c. .....kegs, 200 lb	.....	$.....
27. Wrought welded pipes or tubes	.....	$.....
28. Seamless hot rolled or drawn tubes	.....	$.....
29. All other pipes or tubes, including clinched, riveted, &c.	.....	$.....
30. Cut nails and cut spikes .....kegs, 100 lb.	.....	$.....
31. Horse and mule shoes .....kegs, 200 lb.	.....	$.....
32. Wire and wire products, including wire nails (to be reported in detail in supplemental wire and wire nail schedule) ..... tons, 2000 lb	.....	$.....
33. Cast iron gas, water, oil, soil, plumbers', &c., pipe.....tons, 2000 lb	.....	$.....
34. Gray iron and malleable castings ..... tons, 2000 lb	.....	$.....
35. Ordnance	.....	$.....
36. Iron or steel springs, car, furniture and all other, excepting wire springs	.....	$.....
37. Stamped ware	.....	$.....
38. Machinery, &c.	.....	$.....
39. Agricultural implements	.....	$.....
40. Shovels, spades, scoops, &c.	.....	$.....
41. Saws	.....	$.....
42. Screws	.....	$.....
43. All products other than iron or steel not otherwise provided for	.....	$.....
Amount received for custom work and repairing	.....	$.....
Total	.....	$.....

Sold for export: Products included above. (Indicate items by number.)

Item number.	Quantity. Tons.	Item number.	Quantity. Tons.
.....	.....	.....	.....

3. Machinery, &c.: If works are operated on triple turn, this fact should be stated. The "ton" is the gross ton of 2240 lb.

Rolling mill:
Total daily capacity, double turn, of rolled iron and steel, tons .....
In what part of the world is natural gas used? .....
Converters: Number, kind and capacity.
(State whether standard Bessemer, Tropenas, Claffp-Griffiths, Robert-Bessemer, Bookwalter, Zenzas, Willis, special Bessemer, Schwartz, &c.)

Kind.	Number of converters.	Capacity of each converter per blow.—Tons.	Total daily capacity, double turn, of ingots or castings.—Tons.
.....	.....	.....	.....

If converters are used for desiliconizing and decarbonizing molten metal for open hearth furnaces, give number of converters so used .....
Open hearth steel furnaces:

Kind.	Number.	Capacity of each furnace per heat or melt.—Tons.	Average number of heats per furnace per week.	Total daily capacity, double turn of ingots or castings.—Tons.
Acid furnaces	.....	.....	.....	.....
Basic furnaces	.....	.....	.....	.....

Crucible steel furnaces:

Number of melting furnaces.	Number of pots per furnace.	Total number of crucible steel pots in works.	Total daily capacity, double turn of ingots or castings.—Tons.
.....	.....	.....	.....

Electric furnaces:
Kind (Heroult, Colby, Kjellin, Röchling-Rodenhauser, Lash, &c.) .....
Number..... Capacity for heat or melts, tons.....
Total capacity, tons..... Current consumed, kilowatt hours, per ton.....
Other steel furnaces (Blister, German and miscellaneous):
Number of cementing, converting or other furnaces.....
Kind .....
(*Specify*)
Total daily capacity of steel, double turn, tons.....
Remarks:

Tin Plate and Terne Plate Works, 1909.

Name of establishment .....
Name of owner .....
Location of works { State..... County.....
Post office.....

(Establishments operating blast furnaces, steel works and rolling mills, wire works, or tin plate and terne plate works, as departments of one establishment, should include all departments in one General Schedule, with supplemental schedules for the respective departments. Works which roll their own black plates should in all cases fill the Supplemental Schedule for Steel Works and Rolling Mills.)

1. Materials used: Separately report the quantity and cost of the principal materials used during the year, as indicated.

The total cost of all materials, including fuel, mill supplies, freight, &c., should appear only in the General Schedule.

Kind.	Total quantity used. Pounds	Produced by this establishment. Pounds.	Purchased materials used. Cost.
Domestic black plates or sheets for tinning:			
Steel—			
Bessemer	.....	.....	$.....
Acid open hearth	.....	.....	$.....
Basic open hearth	.....	.....	$.....
Iron	.....	.....	$.....
Foreign black plates or sheets for tinning	.....	.....	$.....
Pig tin	.....	.....	$.....
Pig lead	.....	.....	$.....
Terne mixture purchased (proportion of mixture by weight: Tin.....parts, lead..... parts)	.....	.....	$.....

2. Products: Give the selling value or prices at the works

and account for all products manufactured during the year, including by-products. Separately report the quantity and value of the products, as indicated.

The total value of products in this schedule must agree with the total in the General Schedule, except that for establishments reporting on two or more supplemental schedules and one General Schedule the aggregate of products in the supplemental schedules must agree with the total in the General Schedule.

Kind.	Quantity. Pounds.	Value or price at works.
Tin plates	.....	$.....
Terne plates	.....	$.....
Other sheet iron or sheet steel tinned or terne-plated, taggers tin, tinned stamped ware, &c.	.....	$.....
All other products, including tin dross, scruff, scrap, &c.		$.....
Amount received for custom work and repairing		$.....
Total		$ .....

3. Equipment of tin plate and terne plate department:
Number of completed tin or terne sets.....
Number usually employed in coating tin plates.....
Number usually employed in coating terne plates.....
Number of building tin or terne sets.....

4. Capacity of plant, &c.:
Daily capacity of tinning department for producing bright tin plates, single turn, in pounds.....
Daily capacity of works for producing terne plates, single turn, in pounds .....
Do you operate tin dipping department on single or double turn? .....

5. Black plate department:
Number of completed hot black plate mills in rolling mill department .....
Annual capacity of completed mills in finished black plates, in gross tons, on triple turn.....
Number of completed cold mills in black plate department.....
Number of building hot black plate mills in rolling mill department .....
Annual capacity of building hot black plate mills, in gross tons, on triple turn.....
Remarks:

Wire, 1909.

Name of establishment.....
Name of owner.....
Location of works { State..... County.....
Post office.....

(Establishments operating blast furnaces, steel works and rolling mills, wire works, or tin plate and terne plate works as departments of one establishment, should include all departments in one General Schedule, with supplemental schedules for the respective departments. Works which roll their own wire rods should in all cases fill the supplemental schedule for steel works and rolling mills.)

1. Materials used: Give the quantity (tons of 2000 lb.) and cost of the principal materials used, as indicated. The total cost of all materials, including fuel, mill supplies, freight, &c., should appear only in the General Schedule.

	Total quantity used. Tons.	Produced by this establishment. Tons.	Purchased materials used. Tons.	Cost.
Wire rods:				
Steel—				
Bessemer	.....	.....	.....	$.....
Acid open hearth	.....	.....	.....	$.....
Basic open hearth	.....	.....	.....	$.....
Crucible and other steel	.....	.....	.....	$.....
Iron	.....	.....	.....	$.....
Copper	.....	.....	.....	$.....
Purchased wire, plain or coated	.....	.....	.....	$.....

2. Products: Give the selling value or price at the works, and account for all products and by-products manufactured during the year (whether sold or not). Separately report the quantity and value of the products, as indicated.

The total value of products in this schedule must agree with the total in the General Schedule, except that establishments reporting on Supplemental Schedule for Steel Works and Rolling Mills will report only wire drawn and product, items Nos. 1 to 11, the total for the same agreeing with item No. 32 of the Steel Works and Rolling Mill Supplemental Schedule.

Total production, whether made for consumption in this establishment or for sale:
Iron and steel wire drawn, tons 2000 lb.....
Copper wire drawn, tons 2000 lb.....
Other wire drawn (specify kind).....

Products for sale.	Unit of measure.	Quantity.	Value or price at works.
Iron and steel:			
1. Wire drawn for sale—			
Plain	Tons.	.....	$.....
Coated	Tons.	.....	$.....
2. Wire nails	Kgs. 100 lb.	.....	$.....
3. Barb wire, plain and coated	Tons.	.....	$.....
4. Woven wire products, fence and poultry netting, plain and coated	Tons.	.....	$.....
5. Other fabricated wire products (not enumerated above)	Tons.	.....	$.....
Copper:			
6. Wire drawn for sale	Tons.	.....	$.....
7. Woven wire products	Tons.	.....	$.....
8. Other fabricated wire products	Tons.	.....	$.....
Other metal (specify kind):			
9. Wire drawn for sale	Pounds.	.....	$.....
10. Woven wire products	Pounds.	.....	$.....
11. Other fabricated wire products	Pounds.	.....	$.....
12. All other products, including wire scrap, spelter scrap, tin and lead dross and skimmings, &c.			$.....
Amount received for custom work and repairing			$.....
Total			$.....

3. Equipment of wire works:
Number of wire drawing blocks.....
Number of wire nail machines.....
Remarks:

W. L. C.

The Otis Steel Company, Ltd., Cleveland, Ohio, has removed its Detroit office from the Union Trust Building to the Ford Building. Geo. W. House is the Detroit agent.

Gas and Electric Power for the New Birmingham Wire Plant.

President W. P. Palmer of the American Steel & Wire Company and other officers of the company were in Birmingham, Ala., this week. Mr. Palmer authorized the following statement: "The United States Steel Corporation has authorized the American Steel & Wire Company to proceed with the construction of a rod and wire mill on part of the property recently purchased by the Tennessee Coal, Iron & Railroad Company, near Birmingham. It is the purpose of the company to employ, when running on the basis now proposed, 800 men, and to turn out a product of 400 tons of finished material per day. Steel billets will be furnished by the Tennessee Company. The buildings will be of steel and concrete construction, so arranged as to facilitate the movement of material. There will be no steam engines and boilers used. The machinery is to be electrically driven. Current will be delivered from a gas driven engine power station to be erected by the Tennessee Company, gas to be furnished from by-product coke ovens to be constructed by the latter company. The product will be wire nails, barbed wire, woven field fence, staples, galvanized wire for telephone and telegraph lines. Other lines will be added as the demand justifies. Part of the tonnage will be exported. We believe in the growth of the South and therefore feel sure that the plant will be provided with sufficient business to operate as well as other plants in other places. The cost will be $3,000,000."

Gary District Real Estate Activity.

Two notable real estate transactions are reported in progress in the Gary District, Indiana. One involves a tract of 200 acres on the Calumet River south of the Federal Furnace property. It is understood that this tract is under option to Cleveland ore and furnace interests, who contemplate erecting blast furnaces. Another transaction is pending which involves property farther south and east, partly within the corporation limits of Gary. A tract of 1200 acres owned by the Mandel Estate, which offers ideal advantages for a great steel plant, is under option to parties understood to represent Pittsburgh interests. This property extends over two miles, along both banks of the Grand Calumet River from Gary to Grasselli. A canal from Indiana Harbor is being dredged to a connection with the river and will be completed in the course of a year to a point on the river within a short distance of this property. The price to be paid is understood to be $1,800,000, or $1500 per acre.

Railroad Equipment Orders.—The Pennsylvania Lines West of Pittsburgh announce that 125 locomotives have been ordered for 1910, 43 to be built at the Juniata shops at Altoona, 50 at the Baldwin Locomotive Works and 32 at plants of the American Locomotive Company. Other recent locomotive orders include 9 for the Vandalia and 7 for the Carolina, Clinchfield & Ohio. The Hocking Valley is said to be in the market and the Santa Fé has been negotiating for 30 of the Mallet type. The Reading Railroad has ordered 2000 steel coal cars and 45 passenger coaches. Other orders include 500 for the Northern Pacific, 300 for the Berwind-White Coal Company, 50 for the Lake Superior & Ishpeming, 700 for the Norfolk & Southern. Among railroads in the market are the Toledo, St. Louis & Western, for 750; the Erie, for 100; the Duluth, Missabe & Northern, for 1000; the Chicago Great Western, for 900 to 1000. The Hocking Valley is in the market and the Baltimore & Ohio, it is said, will place further orders. The *Railroad Gazette* says that the new Winnipeg, Salina & Gulf, for which a contract will be let in two months, will want 4000 freight cars.

OBITUARY.

THOMAS G. BUSH.

Thomas Greene Bush was stricken by apoplexy on the golf links of the Country Club of Birmingham, Ala., November 12, expiring instantly. His was an eventful career, strewn with much hard labor and many difficulties which he always surmounted and came out victorious. He was born in Pickensville, Ala., in 1847, and, at the age of 13, at the breaking out of the Civil War, he was found at the head of a military company, two of

Photograph by Bert G. Covell.

THOMAS G. BUSH.

which he had organized, and one was temporarily accepted by the Governor of Alabama. During 1861-4 he was a cadet at the University of Alabama, but resigned to enter service in the Confederate Army. During the battle of Blakely, Ala., in May, 1865, he was captured and held a prisoner of war at Ship Island and New Orleans until the surrender of General Dick Taylor, at which time he was exchanged at Vicksburg, Miss. He subsequently entered the University of Mississippi to complete his education, and graduated at that institution in 1867. After his graduation he entered the cotton commission business in Mobile, Ala., with his father, A. P. Bush.

In the year 1871 he established a business for himself, known as T. G. Bush & Co., which thrived under his care and attention and to-day is probably the largest wholesale grocery house in the extreme South—at least in the State of Alabama. In 1886 he reorganized and set on foot the Mobile & Birmingham Railroad Company, and later sold it to the Southern Railway Company. In 1886 he was also elected a member of the Alabama Legislature and was chosen chairman of the Ways and Means Committee of the House. From Mobile he removed his family to Anniston, Ala., where he entered the pig iron business in 1887, being elected president of the Shelby Iron Company, which position he held until his death. He was also president of the Anniston Water Supply Company, as well as a large stockholder.

As the iron field widened and the Birmingham District began to expand materially he again moved his family to Birmingham, Ala., in 1898, where he entered upon the active management of the affairs of the Alabama Consolidated Coal & Iron Company, which company was formed by merging several iron and coal companies of the district. This was his biggest undertaking in the iron field; and by his guidance, under strong and able management, the company rose to be a potent factor in the iron world. He saw it grow to great proportions under his leadership when pressure of personal business caused him to resign its management in the early part of 1906. Once free from these strenuous cares he devoted his time to the management of the affairs of the Shelby Iron Company, Imperial Coal & Coke Company, Gray Ore Iron Company, Coosa Pipe & Foundry Company and Gadsden Pipe & Fittings Company, in all of which he was materially interested. In addition he was a director on the board of the Birmingham Railway, Light & Power Comapny and the American Trust & Savings Bank, both of Birmingham, Ala. He was deeply interested in the conservation of the forests of the country and our waterways, having served as a director of the National Rivers and Harbors Congress. He was also appointed by President Roosevelt as one of the members of the commission for Promotion of Industrial Peace. In his demise the South loses a great man and a staunch friend and the country a valuable citizen.

JOHN CALDWELL, treasurer of the Westinghouse Air Brake Company, vice-president of the Bank of Pittsburgh and a leading financier of that city, was found dead in his office at Wilmerding, Pa., shortly before noon, November 23. He had been stricken by heart disease. He had been treasurer of the Westinghouse Air Brake Company for 30 years, and for 10 years before he had been its bookkeeper. He was a trustee in many of Andrew Carnegie's projects in Pittsburgh, notably in the Carnegie Institute's Art Department. He was born in Ireland, but came to America at an early age. He was educated in the public schools. For several years he was treasurer of the Westinghouse Electric & Mfg. Company, and of the Philadelphia Company. He enlisted in the Union army and served through the Civil War. He was 68 years old and leaves a widow and two children.

GEORGE W. THOMPSON, of Hazelton, Pa., vice-president of the Jeansville Iron Company, and formerly representative of the Westinghouse Machine Company in northeastern Pennsylvania, died November 18.

ROBERT M. VAN ARSDALE, proprietor of the *American Engineering and Railroad Journal*, died suddenly at his home in New York November 23, from apoplexy. He leaves a widow.

CHRISTOPHER WESTON died at Oxford Furnace, N. J., November 22, aged 70 years. He was born in Taunton, Mass., and at an early age engaged in the nail-making business. He served in the Civil War, and for bravery was quickly promoted from sergeant to captain. After the war he took up the iron business at Oxford Furnace. He leaves a widow, a son and a daughter.

Important Mesta Machinery Shipments.—The Mesta Machine Company, Pittsburgh, has recently made the following interesting shipments: National Enameling & Stamping Company, Granite City, Ill., four 26-in. hot tin mills; Morris & Bailey Steel Company, Wilson, Pa., vertical shear; Salem Iron Company, Leetonia, Ohio, 72-in. Helander barometric condenser, pumps, &c.; Osterberg Tin Plate Company, Waynesburg, Pa., Mesta patent pickling machine; Irondale Steel Company, Irondale, Wash., 22-in. structural mill and complete roll equipment for rolling all kinds of shapes; North Alabama Rolling Mill Company, Sheffield, Ala., lever shear; Jones & Laughlin Steel Company, Aliquippa, Pa., 36 and 60 x 60 in. cross compound Corliss engine of the condensing type, and rope wheels for driving new tin mill plant; Pittsburgh-Buffalo Company, Marianna, Pa., 36 x 60 in. twin cylinder first motion hoisting engine, said to be the largest built for such service in the vicinity; Canonsburg Steel & Iron Works, Canonsburg, Pa., 57-in. Helander barometric condenser, pumps, &c. Numerous miscellaneous shipments of rolls, shears, &c., were also made.

The Osterberg Tin Plate Company, which recently bought the plant of the Washington Forge, Sheet & Tin Mills at Washington, Pa., expects to have it in operation about December 1. The new owner has made material improvements and has added some equipment, the delay in delivery of some of the latter preventing the starting of operations as early as intended. The company will make bright and roofing plate and has already entered a good many orders.

PERSONAL.

Harry V. Jamison, for five years superintendent of the printing department of the American Sheet & Tin Plate Company, Pittsburgh, will, in addition to this work, supervise the advertising department, succeeding J. Craig Wilson, recently resigned.

J. Earlston Thropp, Jr., has been appointed superintendent of the Thomas Iron Company's plant at Hokendauqua, Pa., in the Lehigh Valley, and will assume the duties of his position in December. He succeeds Horace Boyd, who has been promoted to the position of general superintendent. Mr. Thropp was formerly general superintendent of his father's blast furnaces, at Everett and Saxton, located in the Broad Top District of Bedford County, Pa.

Charles C. Linthicum, one of the foremost patent attorneys in the United States, has been appointed general patent counsel for the United States Steel Corporation. He is the senior member of the law firm of Linthicum, Belt & Fuller, Monadnock Building, Chicago. The offices of the general patent counsel will be removed from New York to Chicago.

Norton T. Jones, connected for the past 14 years with the Kirk-Latty Mfg. Company, Cleveland, Ohio, has resigned his position, to become secretary and general manager of sales for the Foster Bolt & Nut Mfg. Company, also of Cleveland.

F. C. Porter has been in charge of the office of the United Metal Trades Association of the Pacific Coast since the recent resignation of the commissioner, Herman S. Hastings. The position of commissioner will not be filled for the present. It has been decided to move the office from Seattle, Wash., to Portland, Ore., and to maintain it at 222 Commercial Club Building in that city for some months, or until the annual meeting of the association in April, 1910. O. E. Heintz, manager of the Pacific Iron Works, Portland, is president of the association.

Dwight E. Woodbridge, Duluth, Minn., has returned from a trip of several months to Scandinavia. He completed an examination of the Orijarvi iron mine in Finland, which is owned by the Finnish-American Mining Company, Calumet, Mich., and visited most of the important Scandinavian iron mines.

The Cambria Steel Company, Johnstown, Pa., has made the following promotions in its official staff: H. C. Walle, formerly mill assistant to the general manager, to be general superintendent; Daniel M. Stackhouse, superintendent of the open hearth department, to be assistant general superintendent; C. R. Stuart to be superintendent of the open hearth department.

James B. Hogg, civil and mining engineer, with offices at Connellsville, Uniontown and Scottdale, Pa., will open another office in the Park Building, Pittsburgh, December 1. He has for a considerable portion of the past 10 years been employed by the H. C. Frick Coke Company, first as an engineer in charge of properties and later as division engineer in charge of all operations of that company in the north end of the Connellsville coke regions.

Superintendent William Goodhue of the Aetna-Standard plant of the American Sheet & Tin Plate Company has been temporarily transferred to the operating department at Pittsburgh.

Charles M. Schwab has been elected a trustee of Lehigh University.

The Jones & Laughlin Steel Company, Pittsburgh, has let a contract for the erection of a wharf and ice breakers at Aliquippa, Pa., to the Enterprise Contracting Company, Pittsburgh, to be completed within 100 days. The Pittsburgh & Lake Erie Railroad will construct a subway beneath its tracks at Aliquippa leading directly to the Jones & Laughlin plant. With the completion of the subway and the wharf the company will be able to make shipments by boats plying on the Ohio River.

The Torrington Company.

A manufacturing company of which the general public hears little, but the shares of which are listed on the Boston Stock Exchange, is the Torrington Company, Torrington, Conn. It is a holding company owning shares in various manufacturing concerns. The most important subsidiary is the Excelsior Needle Company, which manufactures sewing machine needles, knitting machine and hook needles, also machinery and some minor articles. It owns a 69 per cent. interest in the Standard Company of Torrington, which manufactures bicycle spokes, nipples and bicycle pedals, and is also branching out into the line of piano hardware, as well as small parts for telephones and automobiles. The National Needle Company of Springfield manufactures sewing machine needles. The Coventry Swaging Company, Ltd., of Coventry, England, manufactures bicycle spokes and nipples, as well as sewing machine needles. The Metallwaaren Gesellschaft of Aachen, Germany, manufactures sewing machine needles, knitting machine needles and hook needles. There are maintained selling agencies in New York, Philadelphia, Boston, Brockton, Lynn, Milwaukee, London and Leicester, Glasgow, Scotland; Vienna, Austria, and Buenos Aires, South America.

The Torrington Company was formed in 1898, and the development of the business during the past 11 years has been marked by steady progress in the expansion and perfection of the output, in the lowering of operating costs and in very liberal charges to depreciation. As a matter of fact, something like $1,000,000 has been "boiled" into the property in plant enlargements, &c., since the organization of the company and charged out of earnings.

The company is capitalized for $1,000,000 5 per cent. 20-year bonds, callable at 110; $1,000,000 7 per cent. cumulative preferred stock, callable at 31¼; $1,000,000 8 per cent. class A common stock and $1,000,000 class B 8 per cent. common stock, par, $25. It is interesting to know that when the new company was formed, the former owners were offered $3,000,000 in cash or stock for their property. They elected, in very large degree, to take stock.

The annual report for the fiscal year ended September 1, 1909, presents the income account, which compares with previous years as follows:

	1909.	1908.	1907.
Receipts.			
Dividends	$179,590	$138,359	$181,500
Rent	110,000	110,000	110,000
Miscellaneous	3,656	22,518	2,791
Totals	$293,246	$270,877	$294,291
Expenditures.			
Interest	$50,000	$50,000	$50,000
Dividends	230,000	230,000	230,000
Salaries and fees	8,830	9,300	8,250
Miscellaneous	1,331	†35,445	1,126
Totals	$290,161	$324,745	$289,376
Surplus	3,085	*53,868	4,915

* Deficit.
† Includes $33,854 expended for new machinery.

Cash balance on hand September 1, 1909, was $129,763.

The International Rail Syndicate.—A London cablegram says: "Dissatisfaction over allotment of orders felt by important British members indicates the possibility of a breakup of the British Rail Association and also of the International Rail Syndicate. The existence of both rail associations is further imperiled by the fact that there is likelihood of important additions to the number of outside makers, especially since open hearth steel makes less costly the plant investment in rail manufacture. The international syndicate was established in 1904. The arrangements provide for delimitation of territory and fixing of prices. The combine was renewed for five years in 1907. Serious difficulties that have cropped up from time to time have so far been smoothed over, one of them last year being adjusted by the admittance of a Russian works. In the past year British makers have lost orders for 300,000 tons because unable to enter into free competition."

NEWS OF THE WORKS.

Iron and Steel.

Mention has been made of the organization of the La Follette Iron Company under the laws of New Jersey and of its lease of the blast furnace of the La Follette Coal, Iron & Railway Company at La Follette, Tenn. This lease also covers coke ovens, a limestone quarry and a mine at La Follette and a brown ore mine at Cartersville, Ga., has been recently acquired. The new company is actively engaged in putting all these properties in condition for operation and expects to blow in the furnace some time in January.

Extensive improvements are said to be contemplated by the Parkesburg Iron Company, Parkesburg, Pa., including provision for more power.

Henry H. Hossman, Portsmouth, Ohio, has secured contract for building a 20 x 85 ft. hot blast stove for D. Lamond & Son, Pittsburgh, Pa., at the furnace of the Ironton Iron Company, Ironton, Ohio; also the contract for rebuilding the blast furnace of the Bessie Ferrosilicon Company, Columbus, Ohio, which covers three Amsler stoves, a new furnace stack and all the steel and firebrick work complete. Contracts for the material have been let.

The old Rebecca Furnace at Clover Creek, Blair County, one of the early stacks erected by Dr. Peter Shoenberger, the noted Pennsylvania iron master of the last century, is being dismantled. The furnace was built over 80 years ago.

General Machinery.

New car shops are being planned by the Norfolk & Southern Railroad to replace the buildings recently destroyed by fire at Newbern, N. C., but it is possible that another point may be selected.

The Motor & Machine Company, Red Springs, N. C., was recently organized to manufacture power and industrial machinery.

The Stetson-Ross Machine Works, Seattle, Wash., are adding to their electrical equipment.

A number of motor driven air compressors will be installed by the S. Flory Mfg. Company, Bangor, Pa.

A boiler house and machine shop are being erected for the Crosby Mining Company, Nashwauk, Minn. No equipment details are obtainable.

New concentrating machinery, including crushing rolls, sizing jigs, &c., will be installed by the Desloge Consolidated Lead Company, Desloge, Mo.

A large line of induction motors for alternating current will be installed in the manufacturing plant of the Penn Hardware Company, Reading, Pa.

A pumping unit and tank reservoir will probably be placed in service by the Baltimore & Ohio Railroad at Clarksburg, W. Va.

The Detroit Stoker & Foundry Company, Detroit, Mich., will add to its motor equipment for driving shop machinery.

The C. A. P. Barrett Company, Dayton, Ohio, will add a number of induction motors to its machine equipment.

Engineers of the Southern Pacific Railroad have prepared plans for extensive car and locomotive shops at Oakland, Cal., work upon which may be started shortly after February 1.

New equipment is now being contracted for by the Sterling Engine Company, Buffalo, N. Y., and more will be purchased later, when a plant recently decided upon nears completion.

A metal working plant of considerable size is to be built or leased at Newbern, N. C., by the Cavern Foundry & Machine Company, recently organized.

The Dean Forging Company, Muncie, Ind., recently incorporated, is erecting a plant for the manufacture of drop forgings on a site of four acres adjacent to four railroads. The buildings will be of steel construction with concrete roof, the main structure to be 60 x 232 ft., and the power plant 45 x 77 ft. The plant will be as modern as it is possible to make it, will be fireproof and will be erected at an expenditure of about $100,000. The forge shop will be equipped with steam drop hammers ranging in size from 600 to 8000 lb., and the presses will be steam driven. The company is installing 500 hp. of boilers and a 150-hp. engine direct connected to dynamo. Foundations are being put in for an additional battery of the same horsepower. It is expected that the plant will be ready for operation February 1.

The Windsor Machine Company, Windsor, Vt., has started work on the construction of a new shop, 132 x 584 ft., with saw tooth roof, also a boiler house.

Thomas Carlin's Sons Company, N. S., Pittsburgh, has received a contract from the Indiana Steel Company, Gary, Ind., for two 9-ft. dry grinding pans and an 8-ft. automatic wet pan, and has recently shipped to the Brunot's Island power house of the Pittsburgh Railways Company, an electrically operated traveling derrick equipped with a 1-yard Williams clam shell bucket for hauling coal from its storage yard to the boiler room. Other recent orders include a 7-ft. stationary wet pan of the belted type for a smelting company in Chicago; No. 40 shear to cut 1¼-in. and a No. 1 to cut 6-in. material, Wexleman Brothers, Chicago; No. 18 to cut 2¼-in., Alexander Wolf, Huntington, W. Va., besides a number of others for miscellaneous uses. The company reports a general improvement in its business and that its foundry and machine shops are being operated to greater capacity than for some time.

The Beloit Iron Works, Beloit, Wis., has secured a contract from the C. Fairbanks Company, Alton, Ill., to build what is claimed to be the largest box board machine ever constructed in the world. The machine will be 300 ft. in length and will have a capacity for producing 75 tons of finished board per day and will weigh 500 tons. The company is also engaged at present in finishing three machines for the Marathon Paper Company, Wausau, Wis.

Foundries.

It is reported from Charlotte, N. C., that the Fielding Brass Company, recently organized there by Walter Fielding of Boston, Mass., will build a foundry and machine shop.

The Commercial Iron Works Company, Penn Yan, N. Y., has not yet prepared plans for rebuilding its machine shop, which was recently destroyed by fire. The foundry was not damaged, and the company will operate this department alone for the present.

The Standard Electric Works, Racine, Wis., is having plans prepared for a new foundry, 38 x 96 ft.

Power Plant Equipment.

Power plant machinery and refrigerating apparatus will be required by the Lubbock Light, Power & Ice Company, Lubbock, Texas.

A substation is being erected by the Buffalo & Williamsville Electric Railway, Williamsville, N. Y., the equipment of which is to be a motor generator set or rotary converter and a bank of power transformers.

A pumping plant is to be erected at Henrietta, Okla., and specifications for the machinery will soon be prepared.

A hydro-electric plant having upward of 1000 hp. capacity will be built in the vicinity of Gouverneur, N. Y., by the International Pulp Company, or an electric light and power company in which it is said to be interested. The name of the power site is given as Hailesboro.

An electric power and refrigerating plant will be built at Elgin, Texas, by Kirby F. Leggett of Livingston, Texas.

Automobile parts will be manufactured by the Springfield Motor Car Company, recently organized at Springfield, Ill., among whose primary requirements will be power machinery and electric motors for machine tool drive.

A generating station will be provided by the Hamlin Electric Light & Power Company, Hamlin, Texas, with probable selection of a Corliss engine as prime mover.

A generating plant or substation will be built on Coal Creek in about six months by the Twin City Light & Traction Company, Chehalis, Wash.

A Corliss engine will be purchased by J. H. Werner, St. Charles, Mo., to replace one destroyed in a mill that recently burned.

A new steam power plant, to operate condensing, will be installed by the Clampit Company, Cherry Valley, Ark.

A new generating station will be built by the Oelwein Light, Heat & Power Company, Oelwein, Iowa, and new machinery installed.

The Gade Bros. Mfg. Company has been incorporated for $125,000 at Iowa Falls, Iowa, and will engage in the manufacture of internal combustion engines of several different types.

The capacity of the Omaha & Council Bluffs Street Railway Company's power plant, Omaha, Neb., will be enlarged by the addition of another generating unit. Some substation apparatus is also to be purchased.

A pumping plant for water and sewage is to be built in the spring at Gresham, Ore., and specifications for the machinery will be completed shortly.

A large steam power house, the probable equipment of which will be turbines, is planned for the new factory of the Wayne Company, Newark, N. J.

An electric power plant and pumping station will be built at Green Cove Springs, Fla., from an appropriation of $45,000 recently made.

Pumping machinery will be purchased about January 1 for new water works to be built at Stillwell, Okla. An issue of $75,000 in bonds was recently voted.

A hydro-electric power station, with transmission lines radiating to nearby mines, will be built near Reno, Nev., on the Truckee River, by the Reno Power, Light & Water Company. The initial capacity proposed is 1000 hp.

Until January 1 bids will be received at Foley, Minn., for the construction of a pumping plant and complete water system.

Chas. McBride, Fresno, Cal., is back of a project to build a large hydraulic power plant on Kings River and transmit alter-

nating current to the valley cities for use in pumping and manufacturing.

A new pumping engine will be installed by the Wellington (Texas) Water, Light & Ice Company.

Machinery for a pumping plant will be purchased in the near future by the Jeffersonville Water Company, Jeffersonville, W. Va., recently incorporated.

The city of Andrews, N. C., is planning construction of a hydro-electric plant at an available water power in the vicinity. Installation of an alternating current generator of 200 kw. is proposed.

Contracts are now being made, or will be closed shortly, by the Des Moines & Sioux City Railway, Des Moines, Iowa, for power house machinery, rotary converters, transformers, car motors, air brakes, &c.

The construction of a large pumping plant and water distribution system is under consideration at Bloomington, Ill., and preliminary plans for the work are now being prepared.

The Snead Mfg. & Building Company, Louisville, Ky., has been organized to build a large power plant and sell electric current for use in local industries. Plans of building and equipment are not yet complete.

An electric light plant and pumping station will be built this winter at Ralston, Okla. Machinery specifications and working plans are practically completed.

The authorities at Tecumseh, Okla., are in the market for three motor driven pumps for deep well service.

A central generating station to supply electric power and lighting to surrounding communities will be built in the iron district contiguous to Mineville, N. Y., by the Mineville Light, Heat & Power Company.

A large hydro-electric power development will be undertaken shortly by the Nazas River Power Company on the stream of that name. The company's headquarters are at Chihuahua, Mexico.

Machinery will be purchased for the proposed pumping plant and water works system at Park City, Utah, as soon as the plans and specifications submitted to the local authorities have been officially approved.

A large power plant is proposed in connection with the new mill which will be built at Lawton, Okla., by the Lawton Textile Mfg. Company.

A power plant may be built in the spring near the new Big Four repair shops at Beech Grove, Ind., by the South Shore Traction Company, Indianapolis.

A tubular boiler, engine or turbine and electric generator may be bought after January 1 for the municipal power plant at Dublin, Ga., increasing its capacity 500 kw.

It is expected that a pumping plant will be built during the winter at Palacios, Texas, by the Palacios Water Supply Company.

An electric power and pumping station, operated by turbine wheels, is to be constructed near Durham, N. C., by the Erwin Cotton Mills Company of that place.

The authorities at Youngstown, N. Y., have in contemplation plans for the building of a pumping station for supplying the city with water. Motor driven centrifugal pumps operated on current from one of the hydro-electric plants at Niagara Falls may be chosen for the service.

The Poteau Electric Light & Ice Company, Poteau, Okla., will build a power plant in which the surplus current is to be utilized for refrigerating purposes, thereby making a very economical combination. Plans for the equipment are now being outlined.

A power and refrigerating plant is to be built at Quanah, Texas, by the Bergman Produce Company, Ft. Worth, Texas.

A number of power transformers are to be purchased in the near future by the Quebec Railway, Light & Power Company, Quebec, Canada.

The Traverse City Refrigerator Company will erect and equip a new plant in Traverse City, Mich. The equipment will include steam boilers and motor driven blowers for the refuse disposal system.

The Alpena Power Company, Alpena, Mich., has completed plans for the construction of a large hydro-electric power plant on Thunder River.

The Utica Gas & Electric Company, Utica, N. Y., is having plans prepared for the construction of a hydro-electric plant at Little Falls, N. Y., to cost about $100,000.

The People's Ice Company, Syracuse, N. Y., is planning to erect a hygienic plant of 100 tons capacity per 48 hours and a power plant of 300 hp. capacity at Isabella and Basin streets, to cost about $75,000.

The Springfield Gas & Electric Company, Springfield, Mo., is arranging to extend its service to a large area of surrounding country. Gas producer plants and electric power houses will be built in a number of adjacent cities where franchises have been granted, and ultimately the latter are likely to be converted into substations supplied from a central power plant of large capacity. Purchases of machinery by this company during the next year or two will be quite heavy.

A steam turbine power plant will probably be erected in May next by the Desurmont Worsted Company, Woonsocket, R. I., to supply electric current for operating a new mill which it is proposed to build.

Construction of a pumping station for high pressure fire service on the plans of the New York system is under consideration at Alameda, Cal.

Machinery for a municipal power plant at Cuthbert, Ga., will be bought on or after December 1.

Purchases of pumping machinery, both for low and high pressure, will probably be made in the spring at Fort Smith, Ark.

Additional steam and generator capacity will probably be provided in the spring by the Chattanooga Railway & Light Company for its main power plant at Chattanooga, Tenn.

The Bentleyville (Pa.) Water Company will install an electric generating unit for local power and lighting service.

A new tubular boiler is to be bought shortly for the city lighting station at Fort Wayne, Ind.

An engine driven or steam turbine driven generating set, capable of an output of 750 hp., together with exciter, switchboard and alternating current generators, will be installed by the Smith & Dove Mfg. Company, Andover, Mass. The main unit is to operate condensing.

Plans for a large increase in power equipment have been made by the National Enameling & Stamping Company, Granite City, Ill.

Miller Bros., Winchester, Tenn., are planning the erection of an electric power plant in connection with a new factory. Some special machinery will also be required later.

The projected building of a pumping plant for the city of Vinita, Okla., has progressed to the stage where machinery equipment is being considered. Detailed plans are now being drawn.

A hydro-electric power plant will be built in the vicinity of Greer, Idaho, by the Lolo Milling & Mining Company.

The Pueblo & San Luis Valley Electric Railway, Pueblo, Colo., proposes to build a power plant to furnish current for operating the road and also to drive centrifugal pumps for both irrigation and drainage purposes. The company is reported to be heavily financed. Gas engines are talked of for prime movers in the generating station.

The Heber City Light & Power Company, Heber City, Utah, is about to install a considerable number of transformers.

A producer gas engine is required by the Scott Chair Mfg. Company, Newark, Ohio, and other machinery will be purchased in the near future.

A new generating unit will probably be purchased before long for the power station of the San Angelo Street Railway, San Angelo, Texas, which was recently reorganized for the purpose of effecting improvements in the system.

One of the largest steam power plants in the West, outside of the principal cities, will be installed by the Waterloo, Cedar Falls & Northern Railway, Waterloo, Iowa. It is to consist of steam turbines and generators aggregating 4000 to 5000 hp., several rotary converters of 500 kw. each, and a large line of power transformers.

Some machinery will be needed this winter for the municipal lighting plant at Douglasville, Ga.

A hydro-electric plant of considerable capacity is projected by the Mines of Mexico Company, Denver, Colo., for supplying power to its properties in the State of Sonora, Mexico. The site selected is on the Mayo River near Monterey.

A gas producer plant and power station equipped with internal combustion engines will be erected the first of the year at Wayzata, Minn., by the Lake Minnetonka Public Service Company, detailed drawings having already been completed.

Bids on machinery for the new pumping plant will be taken shortly at Hydro, Okla.

Plans have been made by the Evans City (Pa.) Light, Heat & Power Company, recently incorporated, for the erection of an electric generating plant. A Corliss engine unit and tubular boilers will probably be purchased.

Construction of a municipal power plant, pumping station and other public utilities will be undertaken shortly at Ryan, Okla. F. H. Lancashire, Dallas, Texas, has been engaged as engineer in complete charge of the work.

A municipal power plant, pumping and sewage system will be built early in the coming year by Portales, N. M.

The authorities at Konowa, Okla., have decided to proceed with the erection of a power station for lighting service. Machinery specifications are practically complete.

A hydro-electric plant to furnish current for use in surrounding towns will be constructed in the immediate future by the Garoga Water Power & Construction Company, Gloversville, N. Y. Inquiries concerning machinery should be addressed later to A. T. Peck of that place.

Machinery is to be purchased at once by the Jennings Electric Light & Power Company, Jennings, Okla., for a new plant. J. H. Rickard is engineer in charge.

Power and planing mill machinery is needed by the Carter Lumber Company, Meridian, Miss., for a new plant.

A municipal power plant of large capacity will probably be erected shortly at Little Rock, Ark.

An engine or small turbine and generator will probably be purchased this winter by the Westville (Okla.) Electric Light & Power Company.

Construction of a pumping plant and water supply system will begin this winter at Granfield, Okla. A horizontal pumping engine of the crank and flywheel type is likely to be purchased in the near future.

A. P. White & Co., Cadiz, Ky., have in contemplation the building of a hydro-electric power plant of moderate capacity, with combustion engines arranged to be belted to the generators in seasons of low water.

Electrical machinery will be bought about January 1 for the new municipal plant at Erick, Okla., a bond issue having been authorized.

Two new electric generating units, having a combined output of 1200 hp., together with auxiliary power plant apparatus, will be installed by the Coshocton Light & Heat Company, Coshocton, Ohio.

With the completion of its proposed extensions and the steady increase in commercial load, the Portland (Ore.) Railway, Light & Power Company will require an additional hydro-electric unit for its Cazadero station.

The North Shore Traction Company, which is to operate a new trolley line from Whitestone Landing to Flushing, L. I., and the road connecting Nassau and Queens counties, is to erect a power house at Bayside Meadows, L. I. The construction of the power house is now under way, and the equipment will include two 1000-kw. Westinghouse turbines, Babcock & Wilcox boilers and Worthington condensers. George B. Thomas, Roslyn, N. Y., is general manager.

The Board of Aldermen of Indianola, Miss., will receive bids until December 2 for a 60-hp. gasoline engine and pump, with all necessary fittings, tank and appurtenances, for the water works.

Hardware.

The Greyhound Motor Works, 1443 Niagara street, Buffalo, N. Y., manufacturer of the Greyhound motor cycles, has acquired the plant formerly occupied by the Auto-Bi Company, whose product was also motorcycles. The officers of the new company are Fred P. Fox, president; W. C. Overman and Burwell S. Cutler, vice-presidents, and J. W. Van Allen, secretary-treasurer.

The Buckeye Incubator Company, Columbus, Ohio, has been incorporated with a capital stock of $30,000.

The Weber-Knapp Company has been incorporated at Jamestown, N. Y., with a capital of $50,000, to manufacture hardware specialties. A. F. Weber, E. L. Knapp and A. C. Weber, Jamestown, are incorporators.

The Wabash Mfg. Company, Wabash, Ind., will move to Terre Haute, Ind., where it will occupy larger buildings. It manufactures toy wagons, coasting sleds, wheelbarrows and similar articles. E. V. Pearson is president of the company and W. R. Wilson secretary and general manager.

The Peters Pump Company, Kewanee, Ill., is erecting an addition to its plant, 40 x 66 ft., two stories, which will be used as a warehouse for raw material and shipping room.

The plant of the American Axe & Tool Company, Inc., at Glassport, Pa., which has been rebuilt, is now running to full capacity in all departments.

Lawrence Brothers, manufacturers of hardware specialties, Sterling, Ill., whose plating works were destroyed by fire on the night of November 5, advise us that they hope to have the works in operation again in about 30 days. All other departments are running at full capacity as the fire did not reach the main factory.

The Washington Weeder Works, Walla Walla, Wash., whose factory was completely destroyed by fire September 24, has reconstructed the plant and is now ready to install new machinery. The new buildings cover twice as much ground as those burned, and all machinery to be installed will be driven by electric power instead of gasoline as heretofore.

Foyer Bros. & Co., Toledo, Ohio, have been incorporated with a capital of $100,000 to manufacture go-carts, baby buggies and toy wagons. The company will take over the plant of Foyer Bros., which has been in operation for two years, and the business will be enlarged. The incorporators are Melvin J. Foyer, F. V. Orr, Harvey Whittaker, A. C. Mills and John A. Wilson.

Miscellaneous.

The Big Fork Water Company's plant at Kalispell, Mont., has been sold to the Northern Idaho & Montana Power Company, which will remodel and enlarge its equipment.

The capacity of the United States Metals Refining Company at Carteret, N. J., will be enlarged and new machinery installed.

The construction of a modern system of water works is proposed at Cushing, Okla.

A factory, with power plant, blower system and special machinery will be built at Niles, Mich., by the Niles Folding Fiber Company, recently organized.

In the following Kansas cities, Russell, Jamestown, Caldwell, Wakefield, Marion and Erie, contracts will be let shortly for the construction of extensive water works systems, including pumping plants.

Bids for the construction of water works will be readvertised at Maud, Okla., and Foley, Minn.

One of the most extensive arrangements for motor drive made at any cement mill in the country is being provided by the Portland Cement Company of Utah, whose main office is at Salt Lake City. Electrical operation of crushers, tube mills, ball mills, kilns, &c., will be carried throughout the plant.

Preparation of plans for a pump house and system of water distribution has been authorized at Reidsville, N. C., by the municipality.

The construction of a pumping station for city water works will probably be decided upon within two or three months at Weston, Ore.

The large purchase of heavy gyratory crushers recently made by the Washington State Highway Commissioners may be followed shortly by the letting of additional contracts for machinery, as appropriation has been made for the expenditure of about $1,000,000 in road improvements.

The Northwestern States Portland Cement Company, Mason City, Iowa, is making improvements in its plant, with a view to increased output. Some additional machinery will be required later on.

A pumping station will probably be built this winter at Delhi, Ohio, by the Public Utilities Company, Columbus, Ohio, which has been granted a franchise to operate water works.

Construction of water works at Winnifield, La., will be begun shortly. Specifications for the pumping machinery are now being prepared.

The construction of a pumping plant and water works system is contemplated at Toyah, Texas.

The Crescent Forgings Company, Pittsburgh, advises that its business in wrenches and drop forgings is so good that it is operating its plant at Hulton, nearby, to full capacity, and has sufficient orders on its books to insure operations to July 1, 1910. To permit of a greater capacity and facilitate its business, it is installing additional forging equipment to be completed and ready for operations by December 30, when its output will be increased about 50 per cent.

The Keystone Furnace Construction Company, Pittsburgh, has received repeat orders from the La Belle Iron Works, Steubenville, Ohio; Inland Steel Company, Indian Harbor, Ind., and the Harrisburg Pipe & Pipe Bending Company, Harrisburg, Pa., for additional door frames for open hearth furnaces. It is also equipping the five new 60-ton open hearth furnaces of the Maryland Steel Company, Sparrow's Point, Md., and the two 60-ton furnaces of the United Steel Company, Canton, Ohio, and various open hearths in both the Ohio and Sharon works of the Carnegie Steel Company with door frames. A second order for ports from the American Steel & Wire Company, Cleveland, Ohio, is also being filled, and for the Cambria Steel Company, Johnstown, Pa., both door frames and ports.

Plans are being prepared by the city of Altus, Okla., for a water distributing and sewerage system and an extension of the electric light plant.

D. V. Reedy & Co., Indianapolis, Ind., manufacturers of passenger and freight elevators, are about to let a contract for the construction of a new factory, 50 x 165 ft.

The Non-Rust Metal Mfg. Company, Beaver Falls, Pa., has been incorporated with a capital of $200,000 to manufacture metal specialties.

The Detroit Screw Works, Detroit, Mich., has let contract for the erection of a four-story factory, 80 x 200 ft.

The National Metal Breeching Company has been incorporated at Jasonville, Ind., with $50,000 capital stock, to manufacture metal breeching. The directors are Curtis Hastings, W. H. Smith, Marion A. Thomas, W. J. Hastings, Patrick McGee.

Christian Off & Co., Indianapolis, Ind., have incorporated, with $10,000 capital stock, to manufacture and assemble tin, iron, copper and other metals for use in building trades. The directors are William F. Off, Albert H. Off and Philip J. Frick.

The Buffalo Truck & Motor Company will erect a factory at Leicester, N. Y., for the manufacture of power trucks and delivery wagons.

Armstead, Mont., will build a pumping plant and install water works on a very comprehensive scale.

The Western Stone Company, Chicago, is planning the erection of a new crushing plant, including elevator and screens, in which will be installed one of the largest rock breakers in the country.

The M. Rumley Company, Laporte, Ind., manufacturer of agricultural implements, has increased its capital stock from

$750,000 to $2,000,000 and the par value of its shares from $50 to $100. The company has under construction a new building, 100 x 612 ft., to be used for the manufacture of steam and oil plowing engines. William N. Rumley is president and Edward A. Rumley secretary.

The American District Steam Company, North Tonawanda, N. Y., has given contract to the Durolithic Company, Buffalo, for the erection of a casing mill, 51 x 300 ft., of reinforced concrete, to be added to its North Tonawanda plant.

The Ingram-Richardson Mfg. Company, Beaver Falls, Pa., manufacturer of porcelain enameled iron signs, furnished the iron signs posted on the New York *Herald*-Atlanta *Journal* good roads campaign. The signs are put up all the way from New York to Roanoke, Va., being posted every half mile between these two cities. The company has received a contract from the State of Pennsylvania for 40,000 automobile tags for 1910; also similar contracts for tags from Connecticut, Michigan and New Jersey.

Witherbee, Sherman & Co. have placed a contract in Milwaukee for Gates crushers, elevators, screens, rolls, &c., to go in the new magnetic separating plant at their Harmony iron mines, Mineville, N. Y. This will be the third Harmony mill and will be located between shafts A and B. It will have a capacity of 850 tons per 10 hours. The equipment will be of the most modern and substantial type, manganese steel being used whenever parts are subjected to extreme wear.

The Gas Engine & Power Company and Charles L. Seabury & Co., Morris Heights, New York, is to erect a new building to be used as a gas engine testing house. The only new mechanical equipment to be installed in the building will be a traveling crane, which may possibly not be installed for some time. The demand for the company's gas engines has increased to the extent that it finds it necessary to erect a new building to be exclusively used for testing purposes.

The Emerson-Brantingham Company, Rockford, Ill., manufacturer of agricultural implements, is erecting a new building which it will occupy next spring. The structure will be used largely to take care of its present woodworking shop and for the experimental department, and it will be necessary to buy only a few tools, as the present equipment will be moved into the new building.

The Garner Nut Lock Company, Houston, Texas, capitalized at $10,000, for the manufacture of nut locks, has in the course of construction a factory for which all necessary equipment has been purchased. The company is officered as follows: W. R. Garner, president; J. R. Cheek, vice-president, and W. L. Van Liew, secretary and treasurer.

The city of Glasgow, Mo., has voted bonds in the sum of $30,000, of which amount $17,073 will be used for water works improvements, $8925 for an electric light plant, and $4002 for a sewerage system. Burns & McDonnell, Scarritt Building, Kansas City, Mo., are the engineers in charge.

Bids are being received by J. L. Wees, Commercial Building, St. Louis, Mo., for the construction of a two-story factory building, 80 x 236 ft., to be erected for the More-Jones Brass Company of that city.

The Universal Tire Protector Company, Angola, Ind., has been reorganized and capitalized at $30,000, to manufacture a steel armored protector for automobile tires, also a universal anchoring device for their instantaneous adjustment. The company has secured new quarters, which are being extensively improved with a view to largely increasing the output.

The Brennan Motor & Mfg. Company, Syracuse, N. Y., has completed plans for a two-story and basement addition to its plant, 30 x 100 ft.

The Indianapolis Brass Company has purchased a site for a plant for the manufacture of electric railroad material. The building will be 40 x 100 ft. The company already has one plant of the kind and the addition will double the working force.

The Walker & Douglas Railway Appliance Company has been incorporated at Hammond, Ind., with $10,000 capital stock, to manufacture railroad appliances. The directors are William L. Walker, A. E. Douglass and James Peterman.

The H. R. McNeil Company, recently incorporated at Niagara Falls, N. Y., will build and equip a plant for the manufacture of stave-jointing machinery and general cooperage stock.

The Wm. A. Rogers Company, Ltd., Niagara Falls, N. Y., manufacturer of silver plated ware, has completed plans for another large addition to its present plant, work on which will be started at once.

The Beaver Mfg. Company, Buffalo, N. Y., manufacturer of Beaver wall board and building board, will erect and equip a one-story concrete factory, 50 x 200 ft., on Military road and the New York Central Railroad. A number of large presses and other special machinery will be installed.

The Brush Runabout Company, Detroit, Mich., has let contract for the construction of a manufacturing plant, consisting of seven buildings, of brick, structural iron and concrete, at Massachusetts avenue and the Grand Trunk Railroad.

The Pittsburgh Emery Wheel Company, Park Building, Pittsburgh, and plant at Rochester, Pa., manufacturer of emery, corundum and adamite wheels, reports business to be very good, and that if present conditions continue it will double its capacity by building an addition to its plant and installing more kilns and machinery early in the spring of 1910. The company's product is especially adapted to grinding steel and steel products of all kinds, malleable iron castings, &c.

The Crislet Harrow Company, Cedar Rapids, Wis., will build a plant for which some metal and woodworking tools will be needed.

A system of water supply, with pumps to be either engine or motor driven, will be constructed by the municipality at Gresham, Ore.

A jaw crusher of the Blake type will be ordered from Eastern manufacturers by the Twin Falls North Side Land & Water Company, Milner, Idaho.

It is proposed to build a pumping plant and install water works at Hermosa, S. D.

Milliken Receivership Formally Terminated.

An order was filed November 22 in the United States District Court, in New York, directing the handing over of the property of Milliken Brothers, Inc., by the receivers to the reorganized company. A condition imposed is that $40,000 be deposited to indemnify the receivers against all liability resulting from operations under the receivership and the giving of a bond of $250,000 as security for the fulfillment of any contracts or obligations of the receivers. The petition in bankruptcy was filed June 10, 1907. In the interval the receivers, August Heckscher, W. L. Ward and J. Van Vechton Alcott, have collected more than $6,500,000 and have expended nearly $6,000,000. They have completed 66 contracts, which were on hand when they took charge and 275 other contracts; have operated the fabricating plant on Staten Island at a profit of more than $300,000 and the bridge plant at a profit of $300,000. The amount of cash in bank was reported at $630,000 and outstanding accounts at $300,000. The plan of readjustment, dated June 4, 1909, under which creditors are to receive 10-year registered promisory notes of the corporation for the amounts of their claims, has been declared operative as it has been accepted by 97 per cent. of the creditors and 86 per cent. of both common and preferred stockholders, and the stock has been deposited with the Bankers' Trust Company under a voting trust agreement.

The election of E. C. Wallace as president of the reorganized company has been already announced. Gates W. McGarrah has been elected treasurer and George E. Hargreave, secretary.

The Publicity Luncheon Club of Pittsburgh.—A leaflet has been issued giving a short history of the above named organization which is composed of the publicity men of a number of manufacturing and commercial interests. Among those who launched it are the following: J. Craig Wilson, American Sheet & Tin Plate Company; C. B. Nash, Standard Sanitary Mfg. Company; S. Frey, Carnegie Steel Company; W. A. Keirn, Mesta Machine Company; J. C. McQuiston, Westinghouse Electric Company; C. C. Irwin, Thomas Irwin Company; A. P. Brill, Ruud Mfg. Company; George E. Lees, American Vanadium Company; C. W. Brooke, advertising engineer; L. F. Hamilton, National Tube Company. For several months regular luncheons have been held on Thursday, and after the luncheon an informal interchange of ideas has been made on general advertising questions. This regular weekly meeting has assisted in forming closer acquaintances and cementing friendships founded fundamentally on the fact of congenial tastes and similar activities.

A company composed of well known Birmingham, Ala., men has purchased 300 acres of land lying between Ensley and Wylam and adjoining the large tract acquired by the Tennessee Coal, Iron & Railroad Company, on which to build an extensive by-product coke plant. The real estate syndicate propose to build a model city town, providing homes for the large number of workmen whom the new plants near by, including the new wire mills, will require.

The Iron and Metal Trades

Heavy Buying of Steel Products.

November Orders Exceed Those of October.

The prospect of a winter of agitation at Washington over the status of large corporations is undeniably a factor in any estimate of the course of the iron trade. Yet there is a feeling that the present movement has such a momentum and has been so soundly developed out of the accumulated needs of the country that no great unsettlement is to be looked for now.

Gauged by the business of the past week the steel trade is at high tide prosperity. Leading Pittsburgh interests report that their new orders and specifications in that time have exceeded all records. Large as were October bookings, the rate in the first three weeks of November has been greater. Mills are still chary of far forward business. Most that they are now taking is for the first quarter, while on some products buyers are able to cover for the first half of the year. Some consuming interests that have been putting pressure on the mills in recent weeks have been able to accumulate fair stocks, so that less should be heard for a time from these directions, at least, of the need of close connections between the mill and the manufacturer of final products.

Little discrimination is to be made between the classes of mills as to the volume of demand. Sheet and tin plate plants stand out prominently in the past week, however. The American Sheet & Tin Plate Company reports the monumental week in its history. Nearly all sheet and tin plate mills have their capacity engaged well into the first half of 1910.

Rail orders include 14,000 tons for the Lehigh Valley, of which more than half goes to South Bethlehem and the balance to Buffalo and Pittsburgh. Some good rail business is pending. Heavy purchases of spikes and other track supplies have been made and spikes are advancing.

The structural trade continues active. At Chicago bids have gone in on the new Mandel Brothers' store, requiring 10,000 tons. At Los Angeles, Cal., two contracts amount to 4500 tons.

Plate mills are falling farther behind on deliveries, and car works are increasing their specifications markedly. The siphons for the Catskill aqueduct to be let December 2 will take 6300 tons of riveted plates, and a month later 5000 tons will be bought for the same work. New bids will be asked on the Brooklyn water system extension, which calls for 15,000 tons of plates. The lowest bid submitted was by a cast iron pipe firm.

The market for billets and sheet bars indicates further diminution in the supply of semifinished steel available for smaller mills. Billets have sold at $27.50 to $28, Pittsburgh.

The pig iron market is in one of its alternating periods of waiting. Foundries bought furiously in the last movement and have generally supplied themselves for the first quarter of the new year. The view expressed by one Southern interest that a reaction in prices might be looked for has been followed by a $14 quotation on No. 2 resale iron at Alabama furnace. Pipe foundries in the East are still in the market. In basic iron purchases by two Eastern Pennsylvania companies amount to 19,000 tons at a minimum of $18.75 for next year, 11,000 tons coming from Virginia furnaces.

Pittsburgh reports sales of 40,000 to 50,000 tons of Bessemer pig iron for delivery over the next four months at $19 at furnace.

Lake Superior ore shipments are falling off. The accident at the Soo lock makes it likely that the 1907 total cannot be reached.

That the copper deal is to be put through is good opinion, since, it is said, it is to be on lines not interfered with by the Standard Oil decision. At all events, a better relation between supply and demand is predicted for the near future. At prices ranging from 13.25c. to 13.75c. for electrolytic a large business has been done in the past week, and buying keeps up.

A Comparison of Prices.

Advances Over the Previous Month in Heavy Type, Declines in Italics.

At date, one week, one month and one year previous.

	Nov.24, 1909.	Nov.17, 1909.	Oct.27, 1909.	Nov.25, 1908.
PIG IRON, Per Gross Ton:				
Foundry No. 2, standard, Philadelphia	$19.00	$19.00	$19.00	$17.25
Foundry No. 2, Southern, Cincinnati	17.75	17.75	17.75	16.25
Foundry No. 2, local, Chicago	19.00	19.00	19.00	17.35
Basic, delivered, eastern Pa	*18.75*	18.50	19.00	16.50
Basic, Valley furnace	**17.50**	17.25	17.00	15.50
Bessemer, Pittsburgh	19.90	19.90	19.90	17.40
Gray forge, Pittsburgh	**17.40**	17.40	17.15	15.15
Lake Superior charcoal, Chicago	19.50	19.50	19.50	19.50
BILLETS, &c., Per Gross Ton:				
Bessemer billets, Pittsburgh	**27.50**	27.00	27.00	25.00
Forging billets, Pittsburgh	**31.00**	31.00	30.00	27.00
Open hearth billets, Philadelphia	**30.60**	30.60	28.60	26.20
Wire rods, Pittsburgh	**33.01**	33.00	32.00	33.00
Steel rails, heavy, at mill	28.00	28.00	28.00	28.00
OLD MATERIAL, Per Gross Ton:				
Steel rails, melting, Chicago	17.25	17.25	17.25	15.50
Steel rails, melting, Philadelphia	18.00	18.00	18.00	16.25
Iron rails, Chicago	*19.50*	20.50	20.50	19.50
Iron rails, Philadelphia	21.00	21.00	21.00	20.50
Car wheels, Chicago	**18.50**	18.50	18.25	16.00
Car wheels, Philadelphia	17.50	17.50	17.50	16.50
Heavy steel scrap, Pittsburgh	*17.50*	17.50	18.00	16.75
Heavy steel scrap, Chicago	*16.00*	16.00	16.90	15.00
Heavy steel scrap, Philadelphia	18.00	18.00	18.00	16.25
FINISHED IRON AND STEEL, Per Pound:	Cents.	Cents.	Cents.	Cents.
Refined iron bars, Philadelphia	**1.65**	1.65	1.60	1.50
Common iron bars, Chicago	**1.60**	1.55	1.55	1.50
Common iron bars, Pittsburgh	**1.70**	1.70	1.65	1.50
Steel bars, tidewater, New York	1.66	1.66	1.66	1.56
Steel bars, Pittsburgh	1.50	1.50	1.50	1.40
Tank plates, tidewater, New York	**1.71**	1.71	1.66	1.76
Tank plates, Pittsburgh	**1.55**	1.55	1.50	1.60
Beams, tidewater, New York	**1.71**	1.71	1.66	1.76
Beams, Pittsburgh	**1.55**	1.55	1.50	1.60
Angles, tidewater, New York	**1.71**	1.71	1.66	1.76
Angles, Pittsburgh	**1.55**	1.55	1.50	1.60
Skelp, grooved steel, Pittsburgh	**1.55**	1.55	1.45	1.45
Skelp, sheared steel, Pittsburgh	**1.60**	1.60	1.55	1.50
SHEETS, NAILS AND WIRE, Per Pound:	Cents.	Cents.	Cents.	Cents.
Sheets, black, No. 28, Pittsburgh	2.30	2.30	2.30	2.50
Wire nails, Pittsburgh	1.80	1.80	1.80	1.95
Cut nails, Pittsburgh	1.80	1.80	1.80	1.75
Barb wire, galv., Pittsburgh*	2.10	2.10	2.10	2.40
METALS, Per Pound:	Cents.	Cents.	Cents.	Cents.
Lake copper, New York	**14.00**	13.25	13.25	14.50
Electrolytic copper, New York	**13.75**	13.00	12.87½	14.12½
Spelter, New York	**6.40**	6.30	6.30	5.10
Spelter, St. Louis	**6.25**	6.15	6.10	4.95
Lead, New York	4.40	4.40	4.40	4.37½
Lead, St. Louis	**4.27½**	4.25	4.25	4.22½
Tin, New York	**31.30**	30.75	30.50	30.35
Antimony, Hallett, New York	8.25	8.25	8.25	8.12½
Nickel, New York	45.00	45.00	45.00	45.00
Tin plate, 100 lb., New York	**$3.84**	$3.84	$3.74	$3.89

* These prices are for largest lots to jobbers.

Prices of Finished Iron and Steel F.O B. Pittsburgh.

Freight rates from Pittsburgh in carloads, per 100 lb.: New York, 16c.; Philadelphia, 15c.; Boston, 18c.; Buffalo, 11c.; Cleveland, 10c.; Cincinnati, 15c.; Indianapolis, 17c.; Chicago, 18c.; St. Paul, 32c.; St. Louis, 22½c.; New Orleans, 30c.; Birmingham, Ala., 45c. Rates to the Pacific Coast are 80c. on plates, structural shapes and sheets, No. 11 and heavier; 85c. on sheets, Nos. 12 to 16; 95c. on sheets, No. 16 and lighter; 65c. on wrought pipe and boiler tubes.

Structural Shapes.—I-beams and channels, 3 to 15 in., inclusive, 1.55c., net; I-beams over 15 in., 1.65c., net; H-beams over 8 in., 1.75c.; angles, 3 to 6 in., inclusive, ¼ in. and up, 1.60c., net; angles, over 6 in., 1.65c., net; angles, 3 x 3 in. and up, less than ¼ in., 1.75c., base, half extras, steel bar card; tees, 3 in. and up, 1.65c., net; zees, 3 in. and up, 1.60c., net; angles, channels and tees, under 3 in., 1.50c., base, plus 10c., half extras, steel bar card; deck beams and bulb angles, 1.80c., net; hand rail tees, 2.80c., net; checkered and corrugated plates, 2.80c., net.

Plates.—Tank plates, ¾ in. thick, 6¼ in. up to 100 in. wide, 1.55c. to 1.60c., base. Extras over this price are as follows:

Tank, ship and bridge quality, ¼-in. thick on edges, 100 in. wide, down to but not including 6 in. wide, is taken as base.

Steel plates up to 72 in. wide, inclusive, ordered 10.2 lb. per square foot, shall be considered ¼-in. plate. Steel plates over 72 in. wide must be ordered ¼-in. thick on edge, or not less than 11 lb. per square foot, to take base price. Steel plates over 72 in. wide, ordered less than 11 lb. per square foot down to the weight of 3-16-in. shall take the place of 3-16-in.

Percentages as to overweight on plates, whether ordered to gauge or weight, to be governed by the Association of American Steel Manufacturers' Standard Specifications.

Gauges under ¼-in. to and including 3-16-in. plates on thin edges	$0.10
Gauges under 3-16-in. to and including No. 8	.15
Gauges under No. 8 to and including No. 9	.25
All sketches (excepting straight taper plates varying not more than 4 in. in width at ends, narrowest end being not less than 30 in.)	.10
Complete circles	.20
Boiler and flange steel plates	.10
"A. B. M. A." and ordinary firebox steel plates	.20
Still bottom steel	.30
Marine steel	.40
Locomotive firebox steel	.50
Shell grade of steel is abandoned.	
For widths over 100 in. up to 110 in	.05
For widths over 110 in. up to 115 in	.10
For widths over 115 in. up to 120 in	.15
For widths over 120 in. up to 125 in	.25
For widths over 125 in. up to 130 in	.50
For widths over 130 in	1.00

TERMS.—Net cash 30 days. Pacific Coast base, 1.30c. f.o.b. Pittsburgh.

Sheets.—Minimum prices for mill shipments on sheets in carload and larger lots, effective from November 11, on which jobbers charge the usual advances for small lots from store, are as follows: Blue annealed sheets, Nos. 3 to 8, 1.70c.; Nos. 9 and 10, 1.75c.; Nos. 11 and 12, 1.80c.; Nos. 13 and 14, 1.85c.; Nos. 15 and 16, 1.95c. Box annealed sheets, Nos. 17 to 21, 2.20c.; Nos. 22 to 24, 2.25c.; Nos. 25 and 26, 2.30c.; No. 27, 2.35c.; No. 28, 2.40c.; No. 29, 2.45c.; No. 30, 2.55c. Galvanized sheets, Nos. 13 and 14, 2.50c.; Nos. 15 and 16, 2.60c.; Nos. 17 to 21, 2.75c.; Nos. 22 to 24, 2.90c.; Nos. 25 and 26, 3.10c.; No. 27, 3.30c.; No. 28, 3.50c.; No. 29, 3.60c.; No. 30, 3.85c. Painted roofing sheets, No. 28, $1.70 per square. Galvanized roofing sheets, No. 28, $3 per square, for 2½-in. corrugations.

Wrought Pipe.—Discounts on steel pipe, ¾ to 6 in., in carloads to the largest trade, are 80 and 5 per cent. off list, and on iron pipe, ¾ to 6 in., are 74 and 5 per cent. off list.

Boiler Tubes.—Regular discounts, effective from October 1, 1909, on steel and charcoal iron boiler tubes, are as follows:

	Steel.	Iron.
1 to 1¼ in.	49	43
1¾ to 2¼ in.	61	43
2½ in.	63	48
2¾ to 5 in.	69	55
6 to 13 in.	61	43

2½ in. and smaller, over 18 ft. long, 10 per cent. net extra.
2¾ in. and larger, over 22 ft. long, 10 per cent. net extra.

Wire Rods.—Bessemer, open hearth and chain rods, $33.

Steel Rivets.—Structural rivets, 2.05c., base; boiler rivets, 2.15c., base, subject to usual extras.

Chicago.

FISHER BUILDING, November 24, 1909.—(*By Telegraph.*)

It has been expected for some time that new business in the steel trade would quiet down toward the close of the year, and a month ago the demand had moderated to some extent. Recently, however, the market has taken on new strength, and in some lines the mill and sales managers look with dismay to the future. In plates, for example, the mills are several months behind, and on top of this comes news of large orders in prospect from Western roads for steel cars. It is understood that the Santa Fé has already placed a large car order without official announcement, and other roads are on the point of following the same policy. The structural mills have six months' work ahead of them on their books, with more projects coming forward each week, and the incident of 1000 tons of material for a building at Los Angeles going to foreign mills passes almost unnoticed. In bars the situation is not so discouraging, as the demand in this line has not expanded at the same rate as for plates and structural shapes, and in wire products the mills are not far behind except on specifications from manufacturers, which have been very heavy. Bar iron is stronger on a general increase in buying, and hard steel bars rolled from old rails are also stronger. The scrap market has gone off in its usual wayward fashion in the face of a stronger demand and higher prices for finished products, but this is due to unprecedented receipts of old material. There is unusual activity in the demand for industrial locations in the Calumet-Gary District, and a large acreage of desirable property is under option to interests which have not yet announced their identity or their plans for development.

Pig Iron.—The past week has been even more quiet than the weeks preceding in the pig iron market and practically no business has been reported, except a few carload transactions. Northern iron remains very firm for all deliveries, reflecting the condition which prevails in steel products, and Southern iron is firmly held at $15, Birmingham, for first quarter and first half. For some time, however, there has been so little demand for prompt shipment that it has been covered by the offerings of resale iron at $14.50, Birmingham, for No. 2 foundry. The lower grades of Southern iron are in better demand, making current prices practically the same for Nos. 3 and 4. It is understood that one Southern interest has in the neighborhood of 100,000 tons of iron at the furnace yards on which warrants are outstanding, the iron being held on speculation by people who bought last summer. The strong charge which has been mentioned in this report recently was adopted as a means of moving this iron, as the yards had become overcrowded. The furnace interests seem to have confidence in the future, and an active market is expected in the course of a few weeks. Practically all the foundries in the West bought heavily last summer and fall, when prices were lower, and they are very prompt as a rule in giving shipping orders, encouraged in some cases by notice from the furnaces that any tonnage not ordered out before the end of the year will be canceled. The following prices are for November and December delivery, f.o.b. Chicago:

Lake Superior Charcoal	$19.50 to $20.00
Northern coke foundry, No. 1	19.50 to 20.00
Northern coke foundry, No. 2	19.00 to 19.50
Northern coke foundry, No. 3	18.50 to 19.00
Northern Scotch, No. 1	19.00 to 19.50
Southern coke, No. 1	19.35 to 19.85
Southern coke, No. 2	18.85 to 19.35
Southern coke, No. 3	18.35 to 18.85
Southern coke, No. 4	18.35 to 18.85
Southern coke, No. 1 soft	19.35 to 19.85
Southern coke, No. 2 soft	18.85 to 19.35
Southern gray forge	17.85 to 18.35
Southern mottled	17.60 to 18.10
Malleable Bessemer	19.00 to 19.50
Standard Bessemer	21.40 to 21.90
Jackson Co. and Kentucky silvery, 6%	20.40 to 20.90
Jackson Co. and Kentucky silvery, 8%	21.40 to 21.90
Jackson Co. and Kentucky silvery, 10%	22.40 to 22.90

(*By Mail.*)

Billets.—The mills in this district are short of steel for their own finishing departments and are therefore unable to quote any prices on billets for Chicago delivery.

Rails and Track Supplies.—The leading interest booked orders for standard rails last week amounting to 33,000 tons. The demand for light rails continues good, and it seems impossible to satisfy the urgent call for track supplies. Deliveries are somewhat better on spikes, but on track bolts and tie plates the mills are unable to keep up with orders and specifications. We quote standard railroad spikes at 1.80c., base; track bolts and square nuts, 2.30c. to 2.50c., base, all in car lots, Chicago. Light rails, 40 to 45 lb., $26; 30 to 35 lb., $26.75; 16, 20 and 25 lb., $27; 12 lb., $28, Chicago, less 50c. a ton on lots of 500 tons and $1 a ton on lots over 500 tons.

Structural Material.—The Chicago office of the American Bridge Company booked the contract for the St. Louis free bridge, bids for which were opened last week in that city. This contract is for the three middle spans, amounting to 14,000 tons. There will be about 16,000 tons in the approaches, but the plans for this work have not yet been completed. The Trust Building at Los Angeles, Cal., calling for 1000 tons, went to the Llewelyn Iron Works of that place. The Herpolscheimer Building, Grand Rapids, Mich., was let to a contracting firm which, it is understood, gave the steel work, amounting to about 1000 tons, to the Noelke-Richards Iron Works, Indianapolis. The Hartley Theatre, at Duluth, about 250 tons, was let on a general contract to McLeod & Smith, but it is understood the fabricating work has not yet been placed by them. The projectors of the Plymouth Building, at Minneapolis, which will cover about a block and would have called for 4000 tons of structural steel, have decided on a reinforced concrete building, and the contract has been let on that basis. Other important work is pending, and the structural mills are falling farther behind each month. The independent local mill is sold up on structural material through the first half of 1910, and it is understood that other mills have about as much work ahead of them. Work has begun on the new fabricating plant of the American Bridge Company at Gary. Prices of structural shapes remain unchanged. We quote plain material from mill, 1.78c. to 1.88c., Chicago; from store, 2c., Chicago.

Plates.—A month ago the plate mills seemed to have a fair prospect of keeping in sight of the growth of the business, as the sheared plate mills were then able to promise deliveries within 60 days, but new orders have come in this month at such a rate that they are falling farther behind. The independent local mill is practically sold up through the first half on light plates and the leading interest has an enormous tonnage booked, with new business still coming at a staggering rate. It is doubted whether the completion of the new plate mills at Gary will afford sufficient capacity to meet the demand of the Western market. Car orders are reappearing from Western railroads, and the indications are that new car business will run almost entirely to steel construction. The prospect is not a cheerful one for the consumers of plates, as they will have to estimate their requirements many months in advance to obtain satisfactory deliv-

eries. We quote mill prices at 1.78c. to 1.88c., Chicago; store prices, 2c., Chicago.

Sheets.—The mills are getting a fair volume of new business since the advance in prices November 11, as the advance had no appreciable effect in checking the buying. For some time buyers had found it difficult to place business with the mills for any delivery, but contracts are now being made for shipment through the first half, and consumers show no signs of holding back in placing their orders. It is pointed out here that galvanized sheets are still $5 per ton below the prices which were quoted January 1, 1907; black sheets $4 lower and blue annealed $2, so that the present basis is not unreasonable in view of the difficulty the mills are having in their efforts to keep up with the demand. We quote mill prices as follows: No. 10 blue annealed, 1.93c.; No. 28 black, 2.58c.; No. 28 galvanized, 3.68c. Prices from store, Chicago, are: No. 10 blue annealed, 2.25c. to 2.35c.; No. 28 black, 2.90c. to 3c.; No. 28 galvanized, 4c. to 4.10c.

Bars.—Evidence of the strength of the market is found in the fact that hard rerolled bars have advanced 10c. per 100 lb. the past month, and iron bars have made about the same gain, both being quoted at a minimum of 1.60c., against the minimum here of 1.68c. for soft steel bars. The iron bar mills are beginning to have difficulty in making deliveries, for the first time in two years, and their new business shows a general increase each week. Consumers who want early deliveries have been filling up the rerolling mills with work or else paying prices above the minimum we quote to find Eastern mills that will give them early shipments on soft steel bars. We quote as follows: Soft steel bars, 1.68c. to 1.78c.; bar iron, 1.60c. to 1.65c.; hard steel bars rolled from old rails, 1.60c. to 1.65c.; all Chicago.

Cast Iron Pipe.—No important contracts are reported for the past week, either for gas or water pipe. The market seems to have entered the quietest period of the year, with several feet of snow in the Northwest to check business that was under consideration in that quarter. It is expected that municipalities and other large buyers will reappear in the market next month with business for spring shipment, and meantime the foundries are running steadily on orders previously booked. A good deal of concern is felt here regarding Pacific coast business. On the large letting at San Francisco last spring the agents for foreign interests could have underbid domestic foundries if the requirements had not been so urgent for prompt shipment. Since then the tariff has been reduced $3 per ton, and the pig iron market has advanced $3, which will give foreign bidders a great advantage unless concessions can be obtained in transcontinental freight rates. On current business we quote, per net ton Chicago, as follows: Water pipe, 4-in., $28.50; 6 to 12 in., $27.50; 16-in. and up, $26.50, with $1 extra for gas pipe.

Old Material.—The congestion resulting from the recent flood of scrap has caused a further decline in all the wrought and cast grades of material. Iron and steel car axles are scarce, however, and the prices remain strong. There is an active inquiry for locomotive tires, with a more satisfactory supply. Melting steel and other grades of steel scrap are weaker, but only occasional sales are made at figures below the prices heretofore quoted. The car wheel foundries continue to pay $18.50. In wrought grades, however, prices are lower all along the line, and the weakness extends to cast and malleable scrap. This condition is due chiefly to the fact that there is an oversupply of wrought scrap, the mills having taken all their needs will justify, while new supplies are pressing on the market. The following prices are per gross ton, f.o.b. Chicago:

Old iron rails	$19.50 to $20.00
Old steel rails, rerolling	18.00 to 18.50
Old steel rails, less than 3 ft	17.25 to 17.75
Relaying rails, standard sections, subject to inspection	23.50 to 24.50
Old car wheels	18.50 to 19.00
Heavy melting steel scrap	16.00 to 16.50
Frogs, switches and guards, cut apart	16.00 to 16.50
Shoveling steel	15.50 to 16.00

The following quotations are per net ton:

Iron angles and splice bars	$17.50 to $18.00
Iron car axles	21.50 to 22.00
Steel car axles	20.50 to 21.00
No. 1 railroad wrought	14.75 to 15.25
No. 2 railroad wrought	13.75 to 14.25
Springs, knuckles and couplers	14.75 to 15.25
Locomotive tires, smooth	18.25 to 18.75
No. 1 dealers' forge	12.50 to 13.00
Steel axle turnings	11.75 to 12.25
Machine shop turnings	10.50 to 11.00
Cast and mixed borings	7.00 to 7.50
No. 1 busheling	12.75 to 13.25
No. 2 busheling	9.75 to 10.25
No. 1 boilers, cut to sheets and rings	11.50 to 12.00
No. 1 cast scrap	14.75 to 15.25
Stove plate and light cast scrap	12.50 to 13.00
Railroad malleable	14.75 to 15.25
Agricultural malleable	13.00 to 13.50
Pipes and flues	11.50 to 12.00

Metals.—Trading in copper has been very active in this market the past week, as consumers who have been buying heretofore from hand to mouth have been in the market with orders covering their requirements to February 1. Tin is also stronger, spelter is holding steady and lead is active without any change in price. The old metals reflect to some extent the advances in copper and tin. It is said that the buying movement in copper was to some extent in anticipation of the consolidation of the larger copper interests which has been under consideration for some time. We quote as follows: Casting copper, 13¾c.; lake, 14c. to 14¼c., in carloads, for prompt shipment; small lots, ¼c. to ⅜c. higher; pig tin, car lots, 32½c. to 33c.; small lots, 34c. to 35c.; lead, desilverized, 4.40c. to 4.50c. for 50-ton lots; corroding, 4.65c. to 4.75c., for 50-ton lots; in carloads, 2½c. per 100 lb. higher; spelter, 6.30c. to 6.40c.; Cookson's antimony, 10⅜c., and other grades, 9¾c. to 10¼c.; sheet zinc is $8, f.o.b. La Salle, in car lots of 600-lb. casks. On old metals we quote: Copper wire, crucible shapes, 14c.; copper bottoms, 11½c.; copper clips, 12c.; red brass, 12½c.; yellow brass, 10c.; light brass, 7c.; lead pipe, 4½c.; zinc, 5.25c.; pewter, No. 1, 23c.; tin foil, 25c.; block tin pipe, 27c.

Pittsburgh.

PARK BUILDING, November 24, 1909.—(*By Telegraph.*)

Pig Iron.—Some new inquiry for Bessemer iron has come out in the last few days, and reports are that W. P. Snyder & Co. have sold 40,000 to 50,000 tons for delivery in December and into the first quarter of next year at $19, at Valley furnace. The output of pig iron in the Pittsburgh District and the Mahoning and Shenango valleys is now at a high tide rate. The Pittsburgh District alone made close to 600,000 tons in October and will make over 550,000 tons this month. There is not much inquiry for basic, malleable Bessemer or foundry iron, but the market is firm. We quote Bessemer iron at $19 for delivery over the remainder of this year and through the first half of next year; basic, $17.25 for this year and $17.50 for first quarter; malleable Bessemer, $17.50; No. 2 foundry, $17.25 to $17.50, and gray forge, $16.50, all at Valley furnace, the freight rate to the Pittsburgh District being 90c. a ton.

Steel.—The shortage in supply of billets and sheet and tin bars is getting more acute and consumers who are compelled to come in the open market and buy steel not only have trouble in getting it, but have to pay fancy prices. Bessemer billets for prompt shipment have sold at $27.50 to $28, and 4 x 4-in. open hearth billets at $28.50 to $29, while small lots of sheet and tin bars for delivery in December have sold at $29 to $29.50, at maker's mill, and for delivery in first quarter at $30, at maker's mill. These prices are somewhat higher than are being paid by consumers on contracts for their regular requirements, but reflect the great scarcity in the supply of steel and show what other consumers are forced to pay to get prompt shipments. Forging billets have sold as high as $31 and $32, Pittsburgh.

(*By Mail.*)

Sales agents of leading steel interests, such as the Carnegie Steel Company, Jones & Laughlin Steel Company, American Sheet & Tin Plate Company and others, report that the actual tonnage booked in the past week on their products was the heaviest in any one week in their history. Specifications on contracts for all kinds of finished iron and steel also continue to pour into the mills at an unprecedented rate. Several of the leading steel companies are now practically sold up on all they can make to April 1 and have a good deal sold for second quarter delivery. This is the case particularly in tin plate and sheets, all the leading mills having been pretty heavy sellers for delivery into the first quarter and some of them into the second quarter. No changes in prices of finished material took place during the week, but the market is strong all along the line. The pig iron market has quieted down in new demand, consumers being pretty well covered. For the first time in some years every blast furnace in the Pittsburgh District, and there are 49 of them, is in operation, and their output is running close to 600,000 tons per month, or about 25 per cent. of the make of the whole country. In spite of this, all the leading steel mills are short of pig iron and are using it as fast as it can be had. The shortage in supply of steel billets and sheet and tin bars is becoming more acute, and fancy prices are being paid for reasonably prompt shipments. Bessemer billets in small lots have sold at $27.50 to $28; open hearth, $28.50 to $29, and small sizes of open hearth billets at about $30, maker's mill. There has been little done as yet in contracts for sheet and tin bars for the first quarter, but several lots of 1000 tons have been sold by the Carnegie Steel

Company at $30, at mill. No fixed price has yet been made on such bars for the first quarter, but all indications are that they will not be below $30, at maker's mill. The coke and scrap trades are somewhat quiet just now, and probably will continue so until after the first of the year.

Ferromanganese.—A continued active inquiry is experienced and prices are slightly higher. We quote 80 per cent. foreign, for reasonably prompt shipment, at $45 to $45.50, seaboard, $46 to $46.50 for first half of 1910, and $46.50 to $47 for second half. We note a sale of two cars of 80 per cent. foreign at $45.50 for prompt delivery.

Ferrosilicon.—No sales of moment have been made in the past week, but prices are firm and there is a fair new inquiry. We continue to quote 10 per cent. at $23.90; 11 per cent., $24.90; 12 per cent., $25.90, and 50 per cent., $64.50, Pittsburgh.

Muck Bar.—The price of Northern forge iron is very firm to-day at $16.50, at furnace, or $17.40, Pittsburgh, and adding $13 to this for conversion into muck bar, would make the apparent price of the latter $30.40, Pittsburgh, but best grades of muck bar are quoted at $30.25 to $30.50. A sale of 300 tons of high grade muck bar, cut to lengths, was made at $30.25, Pittsburgh.

Wire Rods.—Consumers of rods, who do not have regular sources of supply, report difficulty in finding sellers that are in position to make reasonably prompt shipments. The two leading makers are practically sold out for delivery in the next two or three months, and the available supply of rods is therefore very light. We quote Bessemer, open hearth and chain rods at $33 to $34, one leading maker refusing to sell open hearth rods at less than the higher price.

Skelp.—Mills rolling sheared sizes of iron and steel skelp are filled up for several months, and consumers find trouble in getting deliveries of plates as fast as needed. Prices are very firm. We quote: Grooved steel skelp, 1.55c.; wide skelp in sheared sizes, 1.60c.; grooved iron skelp, 1.75c. to 1.85c., and sheared sizes of wide iron skelp at 1.90c. to 1.95c., f.o.b., at mill, Pittsburgh.

Steel Rails.—No important contracts for standard sections were placed in the past week. The Carnegie Steel Company received a number of small orders ranging from 300 to 500 tons. It also sold in the past week and received specifications for about 3000 tons of light rails. We quote steel axles at 1.75c. to 1.80c., and splice bars, 1.50c., at mill, Pittsburgh. Light rail prices are as follows: 8 to 10 lb., $32; 12 to 14 lb., $29; 16, 20 and 25 lb., $28; 30 and 35 lb., $27.75, and 40 and 45 lb., $27, Pittsburgh. These prices are for 250-ton lots and over, and for small lots premiums of 50c. per ton and more are being paid. We quote standard sections at $28, at mill.

Plates.—The steel car companies are now specifying heavily for plates and shapes, the Pressed Steel Car Company taking upward of 1200 tons per day and the Standard Steel Car Company 600 to 700 tons per day. The Pressed Steel Car Company will soon have its Woods Run plant in full operation, taking 500 to 600 tons of shapes and plates a day, having a capacity for turning out 40 to 50 steel cars a day. The general demand for plates from boiler shops and other consumers is active, and all the mills are behind in deliveries. We continue to quote ¼-in. and heavier plates at 1.55c. at mill for reasonably prompt shipment, while small lots for early delivery are bringing 1.60c. to 1.65c., at mill.

Structural Material.—The McClintic-Marshall Construction Company has taken a steel building in the Chicago District, about 700 tons, and bids are just going in on a city and county jail for San Francisco, about 800 tons. Deliveries by the mills are not much better. We continue to quote beams and channels up to 15-in. for reasonably prompt delivery at 1.55c. at mill, while small lots bring 1.60c. to 1.65c., at mill.

Sheets.—Specifications and actual orders entered for sheet and tin mill products by the American Sheet & Tin Plate Company last week were the heaviest in any one week in the history of this company. It is now operating to full capacity all its sheet mills, with the exception of the Aetna-Standard Works at Bridgeport, Ohio, containing 23 hot mills, but is making no effort to start this plant. Some of the leading sheet mills have entered heavy contracts for sheets for delivery in the first quarter, and in some cases contracts have been booked where deliveries run through the second quarter. The recent advances are being firmly held. Prices on sheets effective from November 11 are as follows: Blue annealed sheets, Nos. 3 to 8, 1.70c.; Nos. 9 and 10, 1.75c.; Nos. 11 and 12, 1.80c.; Nos. 13 and 14, 1.85c., and Nos. 14 and 15, 1.95c. One-pass box annealed No. 28 black sheets, 2.40c., and No. 28 galvanized, 2.50c., at mill. We quote corrugated roofing sheets at $1.70 per square for painted and $3 for galvanized, 2½-in. corrugations. Jobbers charge the usual advances over these prices for small lots from store.

Tin Plate.—Specifications against contracts for tin plate are enormously heavy, and the leading mills are congested with business, in some cases being sold up through the first quarter of next year, and have a good deal booked for the second quarter. We quote 100-lb. cokes at $3.60 per base box, f.o.b. Pittsburgh, for delivery through the first quarter.

Bars.—Consumers are having trouble in finding mills that will take new orders for steel bars, the larger steel bar interests now being in the position where they are prorating orders, and will accept new business only from regular customers. In such cases contracts are being taken by some of the mills for delivery into the first quarter and also into the second quarter. Deliveries on contracts are very unsatisfactory to consumers, nearly all the mills being a month or six weeks, and in some cases longer, behind in deliveries. The bar iron mills are almost as badly off as the steel bar mills in deliveries, and iron bars for reasonably prompt shipment readily bring premiums. We quote steel bars at 1.50c. to 1.55c., at mill, for reasonably prompt shipment, but on contracts for delivery ahead two leading makers continue to quote about 1.45c., at mill. On iron bars we quote 1.70c. to 1.75c., Pittsburgh, for prompt shipment.

Hoops and Bands.—New orders for both hoops and bands are being received by the mills in fairly large volume, while specifications against contracts are coming in freely. Prices are firm, and some of the mills are refusing to sell for delivery very far ahead, except at an advance over regular prices. We quote steel hoops for forward delivery at 1.50c. to 1.55c. and for prompt shipment at 1.60c. to 1.65c., at mill. Steel bands are firm, at 1.45c. to 1.50c., on contracts for forward delivery, and 1.55c. to 1.60c. for reasonably prompt shipment.

Spelter.—The recent sharp advances in prices of spelter are being absolutely maintained, and the market to-day is very firm at 6.25c., East St. Louis, the freight to Pittsburgh being 12½c. A local consumer bought 100 tons to-day at 6.25c., East St. Louis, or 6.37½c., Pittsburgh.

Spikes.—The Erie Railroad has placed an order with a local interest for 20,000 kegs of railroad spikes for delivery over the first half of next year. Other heavy inquiries being in the market, it is expected that some further large orders will be placed in a short time. One or two makers are asking slightly higher prices. We quote standard sizes of railroad spikes, 4½ x 9-16 in. and larger, at $1.75 for prompt shipment and $1.80 for first quarter. Boat spikes are firm at $1.80, base, and small railroad spikes at $1.80, base. These prices are for carload and larger lots, 10c. per keg advance being charged for small lots.

Shafting.—The recent advance of two points in the price of shafting is being absolutely maintained, and none of the makers is taking new orders at less than 55 per cent. off for carload and larger lots and 50 per cent. off in less than carload lots, delivered in base territory. Nearly all large consumers of shafting placed contracts covering their requirements some time ago, before the recent advance in prices was made, and they are now specifying freely against these orders. Several of the leading shafting makers state that they have more actual orders on their books for shafting than at any time in the past two years. A good many of these contracts expire by limitation December 31, and buyers are hurrying in specifications as fast as possible to get as much as they can before the time limit expires.

Rivets.—At a meeting of the rivet makers held in New York last week no change was made in prices. Manufacturers state that prices of their raw materials are constantly advancing, and it is almost impossible to get enough to keep running full. Orders are plentiful, and all the makers have really more business on their books than they can fill orders for promptly. Prices as affirmed at the meeting last week are as follows: Structural rivets, ¾ in. and larger, 2.05c., base; cone head boiler rivets, ¾ in. and larger, 2.15c., base; ⅝ in. and 11-16 in. take an advance of 15c., and ½ in. and 9-16 in. take an advance of 50c.; in lengths shorter than 1 in. also take an advance of 50c. Terms are 30 days, net cash, f.o.b. mill.

Merchant Pipe.—It is reported that the Barnsdall interests, controlled by the Standard Oil Company, are in the market for a very large gas line to be laid in Kansas. Under a recent court decision Kansas producers can sell gas for delivery outside of the State, and this will result in a number of large lines being laid from their fields to points of consumption. The general demand for pipe continues exceptionally heavy for the season. All the leading makers have all the orders they can fill for some time, and shipments are probably heavier now than at any time in the past two years. Nothing has been heard recently as to whether there will be an advance in prices of steel pipe in the near future. The official discount on black steel pipe, ¾ to 6 in., is 80 and 5, and on iron pipe, ¾ to 6 in., 74 and 5, in carload and larger lots to the largest trade. It should be noted that these prices are absolutely minimum, and are only made to the large trade in carload and larger lots, jobbers charging the usual advances to the smaller trade for shipments from store.

Boiler Tubes.—Several of the leading railroads are in the market for very large quantities of locomotive boiler tubes, among these being the New York Central, Lake Shore,

Pennsylvania and several other roads. The demand for merchant tubes continues active, and the mills have more actual orders on their books for both locomotive and merchant tubes than at any time for more than a year. Regular discounts, printed elsewhere, are being firmly held.

Iron and Steel Scrap.—It is now getting close to the end of the year, and large consumers of scrap are pretty well filled up with material for the next two or three weeks, and are not willing to place orders for more except for delivery in the first two or three months of next year. Several local scrap dealers have had offers for scrap in the last few days that they would have been glad to accept for this and next month's delivery, but consumers do not want the material until January or February, and dealers hesitate to sell for delivery so far ahead unless they have the scrap piled up and can hold it. While the new demand is quiet, prices are fairly strong. The consumption of scrap at present is heavier than at any time in the past two years, and most of the local dealers believe that after the new year starts the demand will be much better than it is now. Dealers quote heavy steel scrap at $17.50 to $17.75, for delivery at such consuming points as Pittsburgh, Monessen, Sharon, Steubenville, Brackenridge and Follansbee. An embargo has been placed on all materials for Brackenridge, Pa., and this is operating against borings and turnings, the largest consumer of these being located at Brackenridge, and filled up for some time ahead. On other grades of scrap we quote: No. 1 cast scrap, $17 to $17.25; No. 2, $16 to $16.25; low phosphorus melting stock, $21 to $21.25; bundled sheet scrap, $16.25 to $16.50; rerolling rails, $18.50 to $18.75, for delivery at Cumberland, Md., Cambridge or Newark, Ohio; railroad malleable, $16 to $16.25; No. 1 busheling, $16 to $16.25; No. 2, $13 to $13.25; grate bars, $14 to $14.25; locomotive axles, $28 to $28.25; iron axles, $27.25 to $27.50; steel axles, $21.50 to $21.75; No. 1 railroad wrought scrap, $19 to $19.50; old car wheels, $18 to 18.25; cast iron borings, $11 to $11.25; machine shop turnings, $13.25 to $13.50. Sheet bar crop ends are weaker in price, and we quote these at $19. All the above prices are per gross ton, f.o.b. Pittsburgh. We note sales of about 1000 tons of heavy melting scrap at $17.75, delivered. A few cars of heavy scrap that were on track and had to be moved have sold at $17.50 and lower, but these sales are no criterion of the actual market.

Coke.—Large consumers of furnace and foundry coke are now pretty well covered for the first half of next year and as a result the inquiry has quieted down somewhat. We continue to quote standard makes of furnace coke for first half delivery at $2.85 to $2.90 per net ton, at oven, and best grades of 72-hour foundry coke at $3.25 to $3.50 per net ton, at oven, for first half. Standard makes of furnace coke for prompt shipment can be had at $2.70 to $2.75 per net ton, at oven. In cases where coke is loaded on cars and has to be moved, it might be had at a lower price for spot shipment.

P. J. Jenks, formerly general manager of the Western Steel Car & Foundry Company at Chicago, has resigned and is now associated with the firm of Banning, Cooper & Co., Ltd., iron and steel factors, Lewis Building, Pittsburgh, effective from November 19.

Buffalo.

BUFFALO, N. Y., November 23, 1909.

Pig Iron.—Shipments from furnaces in this district are now heavier than at any time in their history; specifications on contracts coming in in almost unprecedented volume. Considerable buying is being done, principally in foundry grades, and, while no specially large contracts are being placed, there is no cessation in the flow of small and moderate sized orders, from carloads to 100, 300 and 500 ton lots. Two orders of 1000 tons each and one of 3500 tons were also received, making a fairly large total for the week. Prices are firmly held for all grades. We quote as follows for remainder of year and first quarter deliveries per gross ton, f.o.b. Buffalo:

No. 1 X foundry	$17.25 to $17.75
No. 2 X foundry	17.00 to 17.50
No. 2 plain	16.75 to 17.25
No. 3 foundry	16.50 to 16.75
Gray forge	16.25 to 16.50
Malleable	17.50 to 18.00
Bessemer	19.25 to 19.75
Basic	18.25 to 18.75
Charcoal	20.25 to 21.00

Finished Iron and Steel.—The demand for steel products continues active in all lines. Some agencies are not soliciting new business, as all that can be cared for is coming in freely unsolicited, and these agencies are obliged to decline to quote on many inquiries, their mills being booked to capacity in certain lines for months ahead. One independent interest during the past week advanced the price of steel bars to 1.60c., Pittsburgh. The leading interest reports that considerable contract tonnage in bars is being offered to it at 1.50c., base, Pittsburgh. The same interest reports the sale of 1000 tons of shipbuilding material, structural shapes and plates for a Canadian shipbuilding concern. A number of new building projects are developing in this district for which structural specifications will soon be in readiness for bids. Plans have been completed for a $300,000 brewing plant for the Buffalo Brewing Company requiring a large tonnage of steel for which bids will shortly be received. Bids were asked for this week for steel for a large addition to the plant of the Merchants' Despatch Company at East Rochester, taking about 250 tons. Bids are also being received for about 2000 tons of steel sheet piling for the Ontario Power Company for use in the construction of a trench for the new intake tunnel connecting the company's gate house and power house at Niagara Falls, Ontario, and bids were tendered last week for 700 tons of structural steel required for the new Warner Building, Syracuse, N. Y.

Old Material.—The market is suffering from a state of unassimilated surplus or congestion of receiving conditions at the mills, causing a partial and temporary suspension of active trading, both in the way of sales to consumers and purchases of additional stock by dealers. The latter are not attempting to force the market, believing that as soon as the congested condition is relieved, which it is anticipated will be very soon, there will be a renewal of activity in demand. Meantime there is a decided undercurrent of strength and prices, though largely nominal, are practically unchanged. We quote as follows per gross ton, f.o.b. Buffalo:

Heavy melting steel	$16.50 to $17.00
Low phosphorus steel	21.00 to 22.00
No. 1 railroad wrought	18.00 to 18.25
No. 1 railroad and machinery cast scrap	17.00 to 17.50
Old steel axles	20.50 to 21.00
Old iron axles	26.00 to 26.50
Old car wheels	17.50 to 18.00
Railroad malleable	17.00 to 17.50
Boiler plate	14.50 to 15.00
Locomotive grate bars	13.00 to 13.50
Pipe	14.00 to 14.50
Wrought iron and soft steel turnings	11.50 to 12.00
Clean cast iron borings	9.50 to 10.00
No. 1 busheling scrap	14.00 to 14.50

Philadelphia.

PHILADELPHIA, PA., November 23, 1909.

The demand for finished iron and steel continues heavy and Eastern mills find it difficult to meet the demands of customers who ask for early deliveries. Prices are firm and in a number of instances premiums are paid for prompt shipment. The pig iron market continues dull. Occasional sales of steel making irons are reported, but the demand for foundry grades shows little movement. No apprehension is felt, however, on account of the lack of business, as the majority of the melters in this territory made heavy purchases some time back, and are not expected to enter the market freely for at least some little time. Purchases of rolling stock and motive power by railroads in this district have again been a feature. The Pennsylvania Railroad has planned for the building of 125 locomotives for its lines west of Pittsburgh, of which 43 will be built in its own shops; while the Philadelphia & Reading has placed orders for 2000 55-ton steel cars and 45 passenger coaches. The general situation, therefore, is decidedly strong, and no sign of weakness is shown in any department of the market, except in old material, which is somewhat easier, particularly in rolling mill grades, in which an accumulation of material, requiring prompt movement, has resulted in somewhat lower prices. This condition is believed, however, to be a temporary one.

Pig Iron.—Notwithstanding continued quiet conditions in the trade, the market is strong, no softening in prices being apparent. There is, however, a tendency in nearly all grades toward a greater uniformity of quotations for standard brands of iron, sellers finding that the extreme quotations which prevailed recently are unproductive of results. The movement in foundry irons has been unimportant, transactions being for the most part in small lots for reasonably early delivery. Occasionally a sale of a round lot for early 1910 delivery is made, but these are comparatively few. Quotations for the leading brands of No. 2 X foundry range from $19 to $19.50, delivered in this vicinity, shipment in most cases ranging up to the end of the first quarter, beyond which there is little disposition to sell. The bulk of the business has been done at about $19.25, although some irons can still be had quite freely at $19, delivered. The amount sold at the top of the market, however, is comparatively light and confined principally to small lots taken by melters who do not wish to change the brands of iron used in their mixtures. Low grade foundry irons are again in somewhat better demand, one of the Delaware River cast iron pipe foundries being in the market for about 5000 tons. Few sales of any importance, however, are reported. Virginia foundry iron has been fairly active, but the greater proportion of the sales have been in small quantities, with now and then a lot of 500 tons. Sellers maintain prices for No. 2 X Virginia at close to $16, at furnace, equal to $19 to $19.25, delivered in this territory, although a few hold at $19.50 for strictly first quarter delivery. The situation regarding Southern iron remains unchanged, the ma-

jority of the producers holding at the $15, Birmingham, basis for No. 2 foundry. It is reported that resale iron can be had at 50c. under that basis, but we can learn of no movement in this district. Less activity is noted in forge iron; sales of odd lots are reported at prices close to $18, delivered, but no large lots have been sold. The leading producers now hold this grade for delivery during the first quarter and half of next year at $17.75, at furnace. Scattered sales of basic iron are noted. Several consumers are in the market for this grade for delivery during the second quarter of next year, while a few have not yet fully covered their requirements for the first quarter. No basic appears to be available in this territory at $18.50, delivered, sellers who recently accepted orders on that basis not being willing to take on any more business at the same level, and it looks as if the market was again moving toward the $19 mark, although moderate orders might still be taken by some producers at $18.75, delivered. One purchase of 8000 tons for first half delivery was taken at the latter figure, while a sale of 10,000 tons of Virginia basic for the same delivery has been announced at a reported price of $19, delivered, at which basis the majority of the sellers are holding. There is still some inquiry for low phosphorus iron, although little business has been done in this territory. Sales for Western shipment, however, have been made at prices slightly above those recently quoted for delivery in this locality. The foreign iron situation is quiet. Both small and large sized lots of foundry and steel making grades are being offered, but consumers show little interest, as domestic brands can be had comparatively freely, and prices at which imported iron has been held have not been attractive enough to induce buyers to take hold. The position of the eastern Pennsylvania producers is exceedingly strong. The Eastern Pig Iron Association, at its meeting last week, noted a slight increase in the tonnage of orders on hand at the close of the month, while stocks on the different furnace companies' yards showed a further decline and are now so low that they may be considered almost a negligible quantity. Stocks on the banks of the Virginia furnaces are also declining, and as there is strong likelihood that some of the furnaces, particularly in eastern Pennsylvania, will shortly have to go out for repairs, the possibility of any accumulation of stocks is considered remote. Prices on all grades continue firm. The following range of quotations is named for standard brands delivered in buyers' yards, eastern Pennsylvania and nearby points, during the remainder of this and the first quarter of next year:

Eastern Pennsylvania, No. 2 X foundry	$19.00 to $19.50
Eastern Pennsylvania, No. 2 plain	18.50 to 19.00
Virginia, No. 2 X foundry	19.00 to 19.25
Virginia, No. 2 plain	18.50 to 19.00
Gray forge	17.75 to 18.25
Basic	18.75 to 19.00
Low phosphorus	22.75 to 23.25

Ferromanganese.—The market shows a shade more activity. Several moderate lots for early 1910 delivery, as well as one lot of 600 tons for last half shipment, have been sold, for Eastern delivery at prices ranging close to $44.50, seaboard. Fresh inquiry, however, is light. Some variations in quotations are still to be noted, $44.50 to $45.50, Baltimore, being named for moderate lots for first half shipment, with small quantities commanding somewhat higher figures.

Billets.—The demand continues active, particularly from the West, where the scarcity is still quite pronounced. Sales in lots ranging up to 1000 tons are reported, the bulk of which has been for early 1910 shipment. Mills have little to offer for prompt shipment, and deliveries of that class command a premium over the price for first quarter shipment, which ranges close to $30.60, delivered in this territory, for ordinary soft rolling steel. There is a continued good demand for forging billets, which are quoted at $32 to $34, Eastern mill, dependent on conditions, the usual extras applying for high carbons and special sizes.

Plates.—Specifications coming to the mills appear to be steadily increasing, and in some cases the aggregate tonnage taken so far this month exceeds all previous records. Deliveries are hardening, and mills are not able to take large orders for early shipment. A particularly heavy demand is noted for all classes of plates entering into railroad use. Consumers are placing orders promptly, and some few contracts for early 1910 delivery are reported, these being taken, in some cases, at a premium of $2 a ton over present quotations, which range from 1.75c. to 1.80c., for early delivery in buyers' yards in this vicinity.

Structural Material.—Some few moderate sized contracts were let during the week, one for 1325 tons for the Stetson Building, going, we are informed, to the leading interest. Several smaller building propositions are under consideration, including, among others, hotels in Reading, Pa., and Baltimore, Md. There has been a good volume of miscellaneous business, and conditions in the trade are generally satisfactory, although mills find it more difficult to make deliveries with any degree of promptness. Prices are very firm, plain shapes ranging from 1.75c. to 1.80c., according to specifications, for delivery in buyers' yards in this territory.

Sheets.—An active demand is noted. Eastern mills have as much tonnage offered as they can take care of, and, in instances, refuse to enter orders from new customers. Makers' plants are fully engaged, and the recently advanced prices are readily obtained. Prompt shipments still command a sharp premium, and makers refuse in the majority of cases to enter orders for extended delivery. Prices for reasonable delivery in buyers' yards in this vicinity range about as follows: Nos. 18 to 20, 2.60c.; Nos. 22 to 24, 2.70c.; Nos. 25 and 26, 2.80c.; No. 27, 2.90c.; No. 28, 3c.

Bars.—A fairly good demand continues. Steel bars are hard to obtain for prompt delivery, and some makers now name prices which may be considered prohibitive. While there was probably not quite so heavy a tonnage done in refined bars during the week, business is still quite active and mills are gradually increasing their output. Quotations for refined iron bars range from 1.65c. to 1.75c., delivered in this territory, the leading producers holding close to the higher range. Steel bars are firm at 1.65c. to 1.70c., delivered, but it is almost impossible to get early shipments on new orders.

Coke.—The leading transaction was a sale of 30,000 tons of Connellsville furnace coke, for delivery over the first half of next year, at a price close to $2.75 per net ton, at oven. Furnace coke is now held at prices ranging from $2.75 to $3 at oven, dependent on quality, for delivery during the first half. Foundry coke has not been particularly active. Sales of small lots for prompt and first quarter shipment at prices ranging around $3.25, at oven, are reported, with some sellers holding as high as $3.50 for first half shipment. For delivery in this territory during the next five months the following range of prices is to be noted:

Connellsville furnace coke	$5.00 to $5.25
Foundry coke	5.50 to 5.75
Mountain furnace coke	4.60 to 4.85
Foundry coke	4.85 to 5.25

Old Material.—The market is somewhat easier, particularly in the rolling mill grades, an accumulation of some classes of which, requiring prompt movement, resulted in lower prices, a condition which, however, is believed to be but temporary. Heavy melting steel scrap is firm at $18, the established price of the associated mills, although one sale of 1000 tons to an outside mill is reported at a price a little above that figure. Several thousand tons of foreign crop ends have recently been received at this port for Eastern steel mills, which claim now to have good supplies of scrap on hand. The railroad lists in this territory are now practically cleaned up, the bulk of the offerings going direct to consumers. Machinery cast scrap has been fairly active, and prices for this grade are strong. Quotations, while to some extent normal, range about as follows for prompt delivery in buyers' yards, eastern Pennsylvania and nearby points:

No. 1 steel scrap and crops	$18.00 to $18.25
Old steel rails, rerolling	19.00 to 19.50
Low phosphorus	23.00 to 23.50
Old steel axles	24.00 to 25.00
Old iron axles	30.00 to 31.00
Old iron rails	21.00 to 22.00
Old car wheels	17.50 to 18.00
Choice No. 1 R. R. wrought	20.00 to 20.50
Machinery cast	17.50 to 18.00
Railroad malleable	17.50 to 18.00
Wrought iron pipe	17.00 to 17.50
No. 1 forge fire scrap	16.50 to 17.00
No. 2 light iron	10.75 to 11.25
Wrought turnings	14.50 to 15.00
Stove plate	14.00 to 15.00
Cast borings	13.00 to 13.50
Grate bars	14.75 to 15.25

Birmingham.

BIRMINGHAM, ALA., November 22, 1909.

Pig Iron.—The past week has been characterized by scattering sales by practically all the companies in the district and in the State, in lots of 25 to 100 tons; some for prompt shipment and some for delivery during the first quarter of next year. The feature of the market is its firmness; while inquiries are comparatively few, the furnace companies so far have expressed their willingness to store rather than shade the base price of $15 at the furnace. Warrant or resale iron is being sold in small lots at $14.50 base. As far as the available records go we can find no sales having been made of considerable tonnage of merchant iron to any one customer. This is probably due to the fact that buyers some months ago, when a healthy buying movement on low-priced iron was on, somewhat overestimated, at the time, the recuperation of their business, hence back deliveries have accumulated materially. Now that their business has come up to their expectations, iron is being taken on old contracts freely, as well as old tonnage being taken care of; therefore, there is a small demand for spot iron. Then, again, such a situation could be the result of merchant sellers refusing to sell the iron for delivery probably over the first half of next year. However, it is no uncommon thing for lulls like the one we are experiencing to intervene for months between heavy buying movements. Lulls do not necessarily foreshadow weak spots in

an iron market, but rather accentuate the necessity, under such conditions, for a breathing spell.

Cast Iron Pipe.—There is a steady movement of stock reported, and sufficient business is being done from time to time to insure regular and full operations. The cold weather throughout the Northwest, of course, prevents activity in pipe laying, but it is understood that inquiries are good for anticipated business. Prices are firm, as follows, per net ton, f.o.b. cars at foundry here: 4 to 6 in., $26; 8 to 12 in., $25; over 12 in., average $24; with $1 a ton extra for gas pipe.

Old Material.—There is no active demand for scrap iron at this time, and particularly is this true of cast scrap. In keeping with the heavy buying movement of basic and Bessemer pig iron and steel products, heavy melting steel claims the best attention. Wrought scrap is fairly well in demand, though nothing like a few weeks past. Consumers all over the country seem to have a good supply of scrap of all kinds in their yards, and inducement to take more must be precipitated by an attractive price. Those dealers who have faith in the market prefer to pile what they are able to accumulate rather than shade too heavily. However, there is a movement going on from time to time of carload lots picked up on yards of sellers. Following quotations, per gross ton, f.o.b. cars Birmingham, prevail:

Old iron axles	$20.00 to $20.50
Old iron rails	16.00 to 16.50
Old steel axles	19.00 to 19.50
No. 1 railroad wrought	14.50 to 15.00
No. 2 railroad wrought	12.00 to 12.50
No. 1 country wrought	12.00 to 12.50
No. 2 country wrought	11.50 to 12.00
No. 1 machinery	13.00 to 13.50
No. 1 steel	12.50 to 13.00
Tram car wheels	14.50 to 15.00
Standard car wheels	14.50 to 15.00
Light cast and stove plate	11.00 to 11.50
Cast borings	6.50 to 7.00

William P. Palmer, president of the American Steel & Wire Company, is in Birmingham, and will be the guest of President Crawford of the Tennessee company for a few days. He will spend most of the time in looking over the properties recently acquired by the Tennessee company, on which vast improvements will be placed.

The furnace of the Sheffield Coal & Iron Company, recently blown in, is reported by its sales agents, Hickman, Williams & Co., to be making a splendid record, both as to production and grade.

Cincinnati.

CINCINNATI, OHIO, November 24, 1909.—(*By Telegraph.*)

Business in finished lines shows no abatement in this market and deliveries are getting more remote. Manufacturing in all lines shows a steady improvement. In the tool trades certain interests are approximating the abnormal conditions of 1906-1907 in the matter of help and output, and the consumption of iron in this section is undoubtedly increasing. A topic of conversation in the pig iron trade and among melters is the existing lack of new demand, and the probable effect of the published opinion of the chief executive of one of the largest iron producing interests with regard to buying for the next few weeks. Conservative observers express themselves as not surprised at the situation, which was to be expected after a period of such rapid recovery. The money market is easier, and dealers in old material now predict an early improvement in the scrap market, which has been weakening for a fortnight or more.

Pig Iron.—Buying is confined to small lots for immediate delivery, and despite a published interview, which records a prominent Southern producer as foreshadowing possible $14 iron, nothing less than $14.50, Birmingham, for No. 2 can be found here. Some sales have been made to-day on that basis. For next year the quoted price is uniformly $15 for the first half. A large jobbing foundry in the Hamilton District has bought a few carloads for early delivery on that basis. There are unquestionably several lots of resale iron being offered in this market, and the $14.50 price is probably shaded, but so far as can be learned none of the Southern producers has evidenced a disposition to force the issue by meeting the lowest price. The ultimatum of the furnace interests in assessing storage charges on iron which has been subject to such charges, but which have been remitted from time to time, is given as one reason for the offerings of resale iron and the reported $14 quotation. Furnaces have been working well in the South, and there is some accumulation of stocks, which, together with the lassitude in buying, has, it is argued, urged the expediency of reducing these stocks while the opportunity exists, which is now narrowed down to four or five weeks. While the $15 quotation is still made on the first quarter and half, $14.50 may be done on business running into and through the first quarter, and it is stated that a round tonnage might secure the price for the first half. There are no inquiries, and such business as is going comes from melters needing small shipments to fill out or sales resulting from offers put up to the consumer. One sale of Southern No. 1 foundry, 500 tons, for shipment East, was made at $15 and for early delivery. Some high manganese iron, 2 per cent. silicon, 0.50 phosphorus and 1.50 to 2 manganese, was sold at $16.50, Virginia furnace, for early shipment. In Northern irons stocks are reported to be in relatively better shape than Southern, and no pressure is brought to bear by producers to relieve a crowded condition of yards. The price remains at $17, Ironton, for No. 2 for prompt and remainder of the year, which can probably also be done for first quarter. For second half alone the quoted price is $17.50, at furnace. No change is reported in the high silicon market, although in the light of recent occurrences in the foundry situation, recalling the recent advances promulgated by the Jackson County producers to become effective on the first of the year, some announcement would not be unexpected. The blowing in of the stack at Hamilton, Ohio, on foundry iron last week is expected to exert an influence favoring the consumer who may have early requirements to supply. For prompt delivery and for remainder of the year, based on freight rates of $3.25 from Birmingham and $1.20 from the Ironton District, we quote as follows:

Southern coke, No. 1 foundry	$18.25
Southern coke, No. 2 foundry	17.75
Southern coke, No. 3 foundry	17.25
Southern coke, No. 4 foundry	16.75
Southern coke, No. 1 soft	18.25
Southern coke, No 2 soft	17.75
Southern gray forge	16.75
Southern mottled	16.50
Ohio silvery, 8 per cent. silicon	20.20
Lake Superior coke, No. 1	$18.70 to 19.20
Lake Superior coke, No. 2	18.20 to 18.70
Lake Superior coke, No. 3	17.70 to 18.20
Standard Southern car wheel	24.75 to 25.25
Lake Superior car wheel	21.75 to 22.25

(*By Mail.*)

Coke.—The market is best described as steady. Some foundry contracts for the first half are under negotiation. Connellsville foundry for next year is quotable at $3.25 to $3.50 per net ton at oven, and the minimum for spot deliveries is $3.25. Connellsville furnace grades are selling at about $3, although some offers for first half business at $2.90 are said to be under consideration. Some of the larger producers are stated to have refused to contract for the first half at any price, and to make $3 the absolute minimum for spot and remainder of the year, others holding out for $3.25 for 1910 business. Water conditions in the Connellsville region have improved, and now the only drawbacks are scarcity of box cars and in some districts a lack of motive power, locomotives being engaged in the regular commercial trade, movement of crops, &c. Wise County furnace grades, spot, are quoted at $2.35 to $2.50 per net ton at oven and on contract $2.50 to $2.75, and $3 to $3.25 for spot foundry business. Pocahontas foundry is quotable at $2.75 to $3 spot and contract; furnace about $2.75.

Structural Material.—About the only difference in the local situation is that deliveries are further off. Prices from mill, 1.60c., 1.65c. and 1.70c., according to quantities and deliveries; from stock, 2c. for up to 15-in. Some good business is in prospect from the Indianapolis District, where a number of large buildings are projected, but the greater part of this business is expected to go to Indianapolis factors. Requirements for new buildings of the American Rolling Mill Company at Middletown, Ohio, are expected to be figured on within the next week or two. A considerable quantity of twisted steel bars for concrete construction is selling here at 2c. to 2.20c., for ¾-in. and larger, depending on quantity, customer and delivery.

Bars.—Some of the independent concerns are required to refer all business on steel bars, and the price is firm, at 1.50c., Pittsburgh. Dealers are getting 1.90c. to 2c. for sales from stock, and 20 to 22 weeks represent about the best that can be done on mill deliveries, with the single exception of the largest interest, which is understood to be making deliveries in from 8 to 12 weeks on select business. Iron bars are firm, at 1.55c. to 1.60c., Cincinnati.

Sheets.—The local situation on sheets is described as a little stiffer; specifications against contracts for first quarter have been heavy and manufacturers in this market feel that the increasing demand will bring still further advances for second quarter business, on which none in this trade is quoting as yet. On No. 28 galvanized it is expected that 3.60c., Pittsburgh, will be the ruling price when the larger interests are ready to quote on second quarter business. The present price is 3.50c., Pittsburgh. The largest local interest is running full capacity.

Old Material.—The tone of the market is weak and large local interests believe there may be a still further slump, a natural happening at this particular time of the year. Some heavy melting steel has been sold since our last report, one dealer disposing of a 5000-ton lot at a price believed to be in the neighborhood of $15.50 per gross ton. Cast is weak in sympathy with pig iron. Borings and turnings are a little stronger, especially the latter. Railroad offerings have been taken promptly by local dealers, these offerings last week amounting to 15,000 to 20,000 tons. With the meager business and in the absence of purchases

in certain lines of scrap, the following prices are given as about representative of the market, and are f.o.b. buyers' yards, Cincinnati and southern Ohio:

No. 1 R. R. wrought, net ton	$14.00 to $14.50
Cast borings, net ton	8.00 to 8.50
Heavy melting steel scrap, gross ton	15.00 to 16.00
Steel turnings, net ton	9.00 to 10.00
No. 1 cast scrap, net ton	13.50 to 14.00
Burnt scrap, net ton	10.00 to 10.50
Old iron axles, net ton	18.50 to 19.00
Old iron rails, gross ton	18.00 to 18.50
Old steel rails, short, gross ton	15.00 to 15.50
Old steel rails, long, gross ton	16.00 to 16.50
Relaying rails, 56 lb. and up, gross ton	22.00 to 22.50
Old car wheels, gross ton	15.50 to 16.00
Low phosphorus scrap, gross ton	17.50 to 18.00

Cleveland.

CLEVELAND, OHIO, November 23, 1909.

Iron Ore.—Merchant ore firms are trying to get down every ton possible before the close of navigation, but in spite of their efforts some will be unable to deliver quite all they have sold. The movement has slowed off considerably in the past few days. Ore is frozen at the upper lake docks and boats are being delayed in getting cargoes. At the lower lake ports considerable trouble is also being experienced, a large number of carriers being bunched at this end of the lakes because the boats came down close together after the blockade, due to the accident at the Soo, was lifted last week. Owing to the unexpected hindrance in the movement the November shipments will be less than expected, and it is doubtful if the total movement for the season will reach that of 1907. If weather permits, however, considerable ore will be brought down in the next two weeks, as shippers will keep their boats running as long as possible. The pressure that was being brought to bear on the ore firms by the furnacemen a few weeks ago for an early agreement on prices for the coming season has largely subsided, this being partly due to the inactivity of the pig iron market, and the price question may not be formally acted upon for several weeks. Prices at Lake Erie docks, per gross ton, are as follows: Old Range Bessemer, $4.50; Mesaba Bessemer, $4.25; Old Range non-Bessemer, $3.70; Mesaba non-Bessemer, $3.50.

Pig Iron.—The market continues quiet. The only sales reported are of foundry grades in lots of 100 tons and under. The most of this iron is for delivery during the remainder of the year to foundries that had previously not bought quite enough to meet this year's requirements. A large proportion of the foundries are covered for the first quarter or longer and not much buying is expected this year. The foundry melt continues heavy and in most cases consumers are requesting furnaces to anticipate shipments. Similar requests are being made by some basic consumers. Few new inquiries for any grade are coming in. The market is fairly firm. Other makers are not disposed to meet a slight price concession that has been made in the past week or two by one Valley interest. Local furnaces continue to quote No. 2 foundry at $18, at furnace, for any delivery. In the Valley the same grade is quoted at $17.25 for the balance of the year and first quarter and $17.25 to $17.50, at furnace, for the first half. For the remainder of the year we quote, delivered, Cleveland, as follows:

Bessemer	$19.90
Northern foundry, No. 1	$18.65 to 18.75
Northern foundry, No. 2	18.15 to 18.25
Northern foundry, No. 3	17.65 to 17.75
Southern foundry, No. 2	18.85
Gray forge	17.40
Jackson County silvery, 8 per cent. silicon	20.55

Coke.—The market is quiet, but prices continue firm. In foundry grades some contracts are being closed for the first half of next year. We quote standard Connellsville furnace coke at $2.80 to $2.90 for spot shipment, and $2.85 to $3 for delivery over the balance of the year. Connellsville 72-hr. foundry coke is held at $3.25 for spot shipment and $3.25 to $3.50 for the first half.

Finished Iron and Steel.—While the total volume of specifications is not as heavy as a few weeks ago, consumers never have appeared more anxious to secure shipments than at present, and a great deal of pressure is being made against mill agencies to obtain early deliveries on material that is actually needed for work under way. This demand applies to plates and structural material, as well as to steel bars, and owing to the scarcity Eastern mills are taking considerable tonnage in small orders for prompt shipment in this territory at a premium of $2 a ton for plates and shapes, and there is talk of advancing the premium price. For forward delivery plates and shapes are quoted at 1.60c., Pittsburgh, and steel bars at 1.45c. to 1.50c., Pittsburgh, with an advance of $2 to $3 a ton for the latter for prompt shipment. Jobbers' stocks of structural material have become greatly depleted, so that small consumers are having trouble in securing desired sizes from that source. The demand for iron bars continues active and prices are firm. Some outside mills have advanced their prices. In addition to the tonnage sold as noted last week, local mills have taken considerable additional business from railroads and car companies, and are now well filled up with contracts for the first quarter. Mills are not disposed to make bar iron contracts beyond the first quarter. We quote iron bars at 1.65c., Cleveland. The railroads are buying freely for their requirements for track supplies in 1910. Orders have been placed by the Lake Shore and Lake Erie & Western for their spikes and track bolts for next year, aggregating about 25,000 kegs of the former and 5000 kegs of the latter. The Toledo & Ohio Central placed an order with the leading interest for 3000 tons of rails and also for its year's requirements in spikes and angle bars. In structural work contracts were awarded during the week to the Forest City Steel & Iron Company for a new factory building for the White Sewing Machine Company, Cleveland, requiring 800 tons; to the McClintic-Marshall Construction Company for two new buildings for the Peerless Motor Company, Cleveland, 360 tons, and to the Donovan Iron & Wire Works, Toledo, for a bottling plant in that city, 1700 tons. The demand for sheets continues active and mills are getting further behind on shipments. Blue annealed sheets have become quite scarce and the best deliveries promised are not within about three months. Shipments on black and galvanized sheets can be secured in from six to eight weeks.

Old Material.—The weakening of prices following the lull in the demand has resulted in efforts on the part of consumers to pick up bargains in small lots. The market, however, continues dull and quotations on a few grades have further declined about 50c. a ton. Dealers are not disposed to make sales at present prices except where they have scrap on cars that must be sold. Mills seem to be still well stocked up and are not ready to buy except when attractive concessions are made. Prices per gross ton, f.o.b. Cleveland, are as follows:

Old steel rails	$16.50 to $17.00
Old iron rails	20.50 to 21.00
Steel car axles	20.50 to 21.00
Old car wheels	17.50 to 18.00
Heavy melting steel	16.00 to 16.50
Relaying rails, 50 lb. and over	22.50 to 23.50
Agricultural malleable	14.50 to 15.00
Railroad malleable	17.00 to 17.50
Light bundled sheet scrap	11.00 to 11.50

The following prices are per net ton, f.o.b. Cleveland:

Iron car axles	$21.50 to $22.00
Cast borings	9.00 to 9.25
Iron and steel turnings and drillings	10.75 to 11.00
Steel axle turnings	12.00 to 12.50
No. 1 busheling	14.50 to 15.00
No. 1 railroad wrought	17.00 to 17.50
No. 1 cast	15.00 to 15.50
Stove plate	12.50 to 13.00
Bundled tin scrap	11.00 to 11.50

The German Iron Market.

BERLIN, November 11, 1909.

While the quieter tendency of the market continues, the movement of prices is still upward, so far as changes occur at all. Last Friday's trading on the Düsseldorf Exchange brought out higher prices only for one grade of pig iron, namely, Luxemburg foundry, which was quoted at 50 to 52 marks, compared with 49 to 51 marks October 29. At the same time it was reported that the market had grown more quiet, corresponding with the season of the year, but that the confident undertone was unchanged.

Düsseldorf dispatches state that the recently formed convention for bars held a meeting there to-day and voted in substance to raise the minimum price of bars for delivery after next March by two marks a ton; though there appears that some formalities are still to be decided upon before this decision becomes final. At a meeting yesterday in Cologne of the wire, wire nails and wire products convention no discussion of prices was undertaken, although it had been represented in some quarters that prices would be advanced. A meeting was also held there yesterday to promote the scheme for organizing a syndicate of wire nail manufacturers, for which purpose a meeting had been held about the beginning of October. It was reported as the result of yesterday's meeting that further progress had been made toward completing the organization, but it was not yet possible to issue a call for a meeting to add the final touches.

About the end of last week, when it looked as if the proposed combination of the manufacturers of heavy plates would fail, and after it was publicly declared that the negotiations had been broken off owing to the refusal of several works to join, the news unexpectedly came in that these latter had after all agreed to join, and that the organization had been completed. It went into operation immediately.

The upward tendency of prices referred to above also begins to make itself felt in public biddings on contracts. Thus the railroad authorities at Karlsruhe in Baden several days ago opened bids for supplies of bars, structural shapes and spring steel, on which all the minimum bids were at higher prices than have hitherto prevailed.

American buyers appear to be still in the market. A yesterday's dispatch from Duisburg on the lower Rhine stated that a wholesale dealer in that region had received an American inquiry for 20,000 tons of foundry iron. The firm, however, the dispatch went on, was not able to find any of the furnaces willing to take the order, notwithstand-

ing the fact that the current price of 59 to 61 marks was offered, being unwilling to do further business at present prices. A Japanese order of like amount and price was also expected to lead to no business for the same reason. It is further mentioned in a review of the Siegerland market, that a number of American orders for spiegeleisen were recently offered there; but these, too, did not lead to any transactions and for the reason just mentioned. The reserved attitude of the furnace owners in the matter of prices is explained as due to the fact that foreign ores rich in manganese which are necessary for making this specialty, have recently risen somewhat in price.

The make of pig iron in October was somewhat more than 1,100,000 metric tons, being the first time since November, 1907, that the monthly production touched that level. The market continues in a favorable position. That the position of the furnaces is improving is evidenced by the more active demand for ores in the Siegerland region. It comes principally from the big establishments on the lower Rhine and Westphalian region. There has been considerable buying recently for the first half of 1910, and some supplementary buying for the current quarter is also mentioned. Consumers of pig iron, as well as dealers, show a disposition to cover their requirements at present prices for periods running pretty far out into next year.

The improvement in the bar market is maintained. The loose arrangement as to a minimum price, previously referred to in this correspondence, has proved effective, and the agreement to adopt a higher price, mentioned in a preceding paragraph, indicates that the loose arrangement is gaining a firmer foothold with the mills. The new minimum price of bars is 104 marks, but the actual selling price is already above that level, if the market reports are to be believed.

St. Louis.

ST. LOUIS, November 22, 1909.

A large increase in loans and discounts is reported by the eight leading financial institutions as having taken place during the last 30 days, reflecting a rapid growth in general business. There has also been a marked gain in deposits. In the iron trade first hands are experiencing a temporary lull incident to preparations for the national holiday, the normal result of several months of heavy buying. Southwestern railroads are planning extensions and some plans for new roads are published.

Coke.—Prices are firm and the current demand is fairly good, though it is coming mainly from those who buy in lots of small to moderate size. A leading broker states that as coke is now on a parity with pig iron no further increase in price, barring labor troubles, is to be looked for until pig iron advances. We hear of no inquiries pending for round lots, and quote for standard Connellsville 72-hr. foundry for shipment prior to New Year's, $3.25, and for first half of 1910, $3.50 per net ton, f.o.b. oven.

Pig Iron.—The market is beginning to take on a holiday aspect, and already some of the leading brokers report that they find managers of large local plants have either left town or are preparing to do so with visits to their old homes or hunting trips in view. There is some demand noted, confined entirely to small lots for prompt shipment, together with a few inquiries for forward shipment, none of which exceed 500 tons, covering both gray foundry and malleable iron. Concerning prices, the tone of the market, so far as the furnaces are concerned, is firm and in instances makers are unwilling to take on business for the second quarter of 1910, presumably with the expectation of an advance in the meantime. On the other hand, certificates for Southern iron are being pressed for sale on account of expiration of free storage January 1, and because St. Louis can be reached on more favorable rates than obtain in some sections for this make of iron. This iron is freely offered at $14.50, Birmingham, conditioned on prompt delivery, but the individual lots are comparatively small. Steel making irons have the stronger tone. Most of the inquiries are for Southern foundry, with one inquiry for 300 tons of ferromanganese for shipment over the first half, and a good sized lot of malleable for the same delivery. Low grade iron continues scarce. We quote Southern No. 2 foundry, for furnace account, firm at $15, f.o.b. Birmingham, for any delivery prior to July 1, 1910.

Lead, Spelter, &c.—Lead is dull, but firm, at 4.25c. to 4.27½c., East St. Louis. Spelter is in fair demand and strong at 6.27½c. Zinc ore is $50 per ton, Joplin basis, and ruling steady. The demand for finished metals for the past week was satisfactory.

Old Material.—Though all the leading dealers are busy, it is mainly with taking care of engagements made earlier in the fall, there being but little disposition shown on the part of consumers to enter into new contracts. In consequence of the lack of demand the market is soft and prices are nominal, where unchanged from previous quotations, with, in case of some items in the list, a recession noted. The only list reported is that of 400 tons by the Missouri Pacific. We quote dealers' prices as follows, per gross ton, f.o.b. St. Louis:

Old iron rails	$17.50 to $18.00
Old steel rails, rerolling	16.00 to 16.50
Old steel rails, less than 3 ft.	15.00 to 15.50
Relaying rails, standard sections, subject to inspection	25.00 to 25.50
Old car wheels	18.50 to 19.00
Heavy melting steel scrap	16.00 to 16.50
Frogs, switches and guards, cut apart	15.00 to 15.50

The following quotations are per net ton:

Iron fish plates	$15.00 to $15.50
Iron car axles	21.00 to 21.50
Steel car axles	21.50 to 22.00
No. 1 railroad wrought	15.00 to 15.50
No. 2 railroad wrought	14.00 to 14.50
Railway springs	14.00 to 14.50
Locomotive tires, smooth	16.50 to 17.50
No. 1 dealers' forge	11.50 to 12.00
Mixed borings	7.50 to 8.00
No. 1 busheling	12.00 to 12.50
No. 1 boilers, cut to sheets and rings	11.00 to 11.50
No. 1 cast scrap	14.50 to 15.00
Stove plate and light cast scrap	10.75 to 11.25
Railroad malleable	13.00 to 13.50
Agricultural malleable	11.00 to 11.50
Pipes and flues	10.75 to 11.25
Railroad sheet and tank scrap	10.50 to 11.00
Railroad grate bars	10.50 to 11.00
Machine shop turnings	10.50 to 11.00

The Missouri, Kansas & Texas Railroad has applied for a permit for building a roundhouse at Broadway and Gemblin road, North St. Louis, to cost $40,000.

The contract for the steel work in the superstructure of the free bridge was awarded to the American Bridge Company. The contract is for nickel steel, which will make the spans 5,000,000 lb. lighter than if carbon steel were to be used. The successful bid was $1,393,931 on both nickel steel and carbon steel. The bid of the Pennsylvania Steel Company was $1,684,379 on nickel steel and $1,644,429 on carbon steel. The bid of the McClintock-Marshall Construction Company was $1,674,385 on nickel steel and $1,574,784 on carbon steel. The appropriation for the work was $1,600,000. St. Louis will boast of one of the few bridges of all nickel steel in the country. It is believed that the Missouri Valley Bridge & Iron Company of Leavenworth, Kan., now building the masonry piers, will get the contract to construct the steel spans from the successful bidder.

The State Board of Equalization at a recent meeting at Springfield gives the total equalized assessed value of all classes of property in Illinois for the year 1909 as $2,158,698,450.

Rateau-Smoot Exhaust Steam Turbo-Generator Contracts.—The Lukens Iron & Steel Company, Coatesville, Pa., will install a complete plant consisting of a 750-kw. 250-volt direct current Rateau-Smoot low pressure turbo-generator set, including a Rateau regenerator, condenser, &c. The Ball & Wood Company, Elizabethport, N. J., will furnish the Rateau-Smoot turbine and the Smoot generator. The Rateau Steam Regenerator Company, 2 Rector street, New York, is the general contractor. The Ball & Wood Company has recently closed a contract with the Maryland Steel Company, Sparrows Point, Md., for two 750-kw. 250-volt direct current Smoot generators, to be directly connected to Rateau-Smoot low pressure turbines. In each case these units are to operate on exhaust steam; the Lukens installation at 16 lb. absolute and the Maryland Steel installation at 10 lb. absolute.

The Wells Bros. Company, Greenfield, Mass., has issued a pamphlet entitled "The Proposed Elimination of the Old V-Thread in Taps and Dies," in which the reasons for the adoption of the United States standard, or Sellers form, for all 60-degree threads are given in interesting and instructive details. The disadvantages of the V-thread, as a standard in name only, are understood by many of those who have had practical experience, particularly in the lack of uniformity of diameter line between the taps and dies of different makes resulting in the absence of interchangeability. The pamphlet goes into the facts and history of the case, as they have led up to the adoption of the United States standard by the manufacturers.

A report was telegraphed from Bristol, Va., November 16 that the Virginia Iron, Coal & Coke Company properties had been sold to the United States Steel Corporation. At the New York offices of the Virginia company the report of any sale to any interest was referred to as having no basis beyond newspaper rumor.

New York.

NEW YORK, November 24, 1909.

Pig Iron.—A pipe foundry inquiry for 5000 to 10,000 tons is the largest business in sight. Foundries in New England have fair stocks of metal on hand, and will not need to enter the market for sometime. While buying is not at a standstill, it is largely of a filling-in character. Southern iron may come into the Eastern market more freely at the $14 to $14.50 Birmingham basis for resale No. 2 iron. We quote New York prices as follows for early delivery: Northern No. 1 foundry, $18.75 to $19.25; No. 2 X foundry, $18.50 to $18.75; No. 2 plain, $18 to $18.25. For next year's delivery No. 2 Alabama iron is quoted at $19, though $18.50 to $18.75 can be done for this year.

Steel Rails.—Of the Lehigh Valley order 7500 tons was awarded to the Bethlehem Steel Company, 4000 tons to the Lackawanna Steel Company and 2500 tons to the Carnegie Steel Company. From the Havana Central an inquiry has come for 1200 tons.

Ferroalloys.—Sales of about 10,000 tons of ferromanganese have been reported for delivery over the first half of next year. There are inquiries now in the market for about 20,000 tons, and sellers are quoting $45 for the first half and $45.50 to $46 for delivery over the last half. Ferrosilicon is quiet and quotations are from $62 to $63.

Structural Material.—The total of steel construction contracts let in November promises to be between 110,000 and 120,000 tons—that is, business of a character that would receive the attention of prominent fabricating companies. Much small business is continually being placed, of which they do not hear. The American Bridge Company counts on a total of about 60,000 tons, including the greater part of the Brooklyn Subway and the steel for the St. Louis bridge. The Subway steel requirements will run from 25,000 to 35,000 tons. The E. E. Smith and Wm. Bradley sections will take 18,000 tons and the steel for the pipe galleries and other reinforced concrete bars will amount to several thousand tons. The Tidewater Building Company, which has a section calling for 2600 tons, has placed its steel contract with the Lackawanna Steel Company; Bethlehem shapes will be used in part. The award of 10,000 tons for the Whitehall Building extension has not been made, but the destination of the steel award is generally known. Considerable school house work, probably 8000 to 10,000 tons, is under consideration in New York, but it is a class of work not rapidly put through. Two Los Angeles, Cal., contracts have been taken by the American Bridge Company—1500 tons for the Alexandria Hotel extension and 3000 tons for an office building. This company was awarded the John B. Stetson Company factory at Philadelphia, 1400 tons, and an additional 600 tons for the same interest. The New York building situation is generally quiet. Some further pier work by the municipality will come forward later. Buyers of plain material have been covering for the first quarter of 1910, generally paying 1.76c., tidewater, on mill shipments of beams and channels. Sales from stock of material cut to length are made at 2c. to 2¼c. No importations are reported, and there is little prospect of any such movement.

Plates.—The demand continues heavy, and it appears that the Eastern mills are promising earlier delivery than the Western. The Lukens Iron & Steel Company reports 11 of its 12 furnaces working; in other words, it is running at somewhat over 90 per cent. of its capacity. Bids were opened November 23 for a vessel taking 2000 tons. The Newport News Shipbuilding Company was low bidder. December 2 bids will be opened by the Board of Water Supply (Catskill Aqueduct) for 6300 tons of plates for seven 9½-ft. siphons, about 19,000 ft. total length, the plates ranging from 7-16 to ¾ in. It is understood that the board will advertise for bids before the end of the year for 5000 tons of plates from 7-16 to 9-16 in. for another seven siphons aggregating 14,000 ft. and ranging from 9 ft. 9 in. to 11½ ft. diameter. The price quoted is 1.76c., tidewater, with $2 to $3 bonus a ton on quick shipments.

Bars.—The inability of the steel bar mills to make as early delivery as the iron bar mills is still diverting considerable additional business to the latter. Steel bars are quoted at 1.66c., tidewater; iron bars, 1.65c. to 1.70c., tidewater, according to the character of the order, quality, &c. No very large orders are reported, but good quantities of ordinary lots. The Scranton Bolt & Nut Company reports a heavy demand for spikes

Cast Iron Pipe.—It is understood that new bids are to be asked on the requirements for the Brooklyn water department of the city of New York. When the bids were opened last Wednesday it was found that the makers of cast iron pipe submitted lower figures than the manufacturers of steel riveted pipe. This appears to have surprised the department, as the reverse had been expected. The only important public letting in this vicinity this week is that of the city of Providence, which yesterday opened bids on 800 tons of water pipe. While the season is nearing its end, and smaller orders are being received for early shipment, the business now being booked for next year is of good proportions, while many inquiries are coming out of nice size. All indications point to a year of large business for 1910. Carload lots of 6-in. are quoted at $26 per net ton, tidewater.

Old Material.—The local market is experiencing the general conditions which prevail throughout the country in the old material trade. The past two or three weeks have seen a tremendous outpouring of old material from all sources, partly induced by the high prices, partly caused by the tightening of the money market, and on top of this came heavy offerings of scrap from abroad. A very large quantity of steel scrap and old steel rails is now being offered for early shipment, on which the foreign holders are reducing their prices in the effort to meet the present conditions of trade on this side of the Atlantic. Under the circumstances it is quite remarkable that values hold as well as they do, since consumers are well supplied and little buying is now in progress. Almost the only branch of trade which shows signs of life is the foundry trade, and even in this line prices are not as firm as they were two weeks ago. A Panama vessel arrived with about 1000 tons of miscellaneous scrap, which was sold in the usual way. This scrap is not in condition for immediate shipment to consumers, but requires a great deal of labor in preparing and assorting it. A sale of 2000 tons of heavy relaying rails was made by a railroad company in this section on private terms. Quotations are as follows per gross ton, New York and vicinity:

Rerolling rails	$16.00 to $16.50
Old girder and T rails for melting	15.00 to 15.50
Heavy melting steel scrap	15.00 to 15.50
Relaying rails	21.00 to 22.00
Standard hammered iron car axles	24.50 to 25.00
Old steel car axles	21.50 to 22.00
No. 1 railroad wrought	17.50 to 18.00
Wrought iron track scrap	16.00 to 16.50
No. 1 yard wrought, long	16.00 to 16.50
No. 1 yard wrought, short	15.50 to 16.00
Light iron	10.00 to 10.50
Cast borings	10.00 to 10.50
Wrought turnings	11.50 to 12.00
Wrought pipe	13.75 to 14.25
Old car wheels	15.50 to 16.00
No. 1 heavy cast, broken up	15.50 to 16.00
Stove plate	13.00 to 13.50
Locomotive grate bars	12.50 to 13.00
Malleable cast	16.50 to 17.00

Metal Market.

THE WEEK'S PRICES.

NEW YORK, November 24, 1909.

Cents per pound.

	Copper.			Lead.		Spelter.	
Nov.	Lake.	Electrolytic.	Tin.	New York.	St. Louis.	New York.	St. Louis.
18	13.87½	13.62½	30.75	4.40	4.27½	6.40	6.25
19	14.00	13.75	31.25	4.40	4.27½	6.45	6.30
20	14.00	13.75	....	4.40	4.27½	6.45	6.30
22	14.00	13.75	{31.50 / 31.40	4.40	4.27½	6.40	6.25
23	13.87½	13.62½	31.30	4.40	4.27½	6.40	6.25
24	14.00	13.75	31.30	4.40	4.27½	6.40	6.25

Copper.—The copper situation is decidedly interesting and the market is very sensitive. A rumor was rife all week to the effect that the talked of merger of the big copper interests had been practically consummated, and there appears to be good reason to suppose that this report was well founded. The Standard Oil decision apparently put an end to whatever move had been contemplated, for the time being at least, and it is now fairly certain that no combination will be effected immediately. All this uncertainty and its accompanying rumors of "inside" information brought about a buying movement that reached unexpected proportions. During the last 10 days, according to conservative estimates, 150,000,000 lb. of copper have changed hands. Much of this buying was done for export, although from 50,000,000 to 60,000,000 lb. of metal was taken by domestic consumers. The wire mills and brass interests bought in large quantities, while smaller consumers, apprehensive over the prospects of a combination that might send prices up, took good sized quantities. One large producing and selling company whose production amounts to about 40,000,000 lb. a month is reported to be sold out until April 1, and a large quantity of the copper it will produce during the first quarter of next year was sold during the present buying movement. A number of the large selling companies have withdrawn from the market, leaving smaller interests in control of the situation as far as supplying what copper may be needed is concerned. Whether they will succeed in keeping the market up remains to be seen, but it appears that the keen edge of the demand has been taken off and probably the metal will see some decline in price. To-day the market was uncertain, notwithstanding that announcement was made yesterday that Phelps, Dodge & Co. had followed the example of other leading interests and withdrawn from the market. It appeared that all those who needed copper in any large quantities had supplied their demand, but those who had metal to sell were holding it slightly firmer than the price which had prevailed late yesterday afternoon. The London market has, as a result of the rumors that were current here, indulged in a speculative hysteria, and all sorts of prices have been current there during the week. The London fluctuations, which were

both up and down, have not had as much effect on the New York market as usual, as it was apparent that a large amount of the buying done here was transacted by consumers. The schedule of daily prices given above shows the prices established each day, but it should be remembered that the market was so sensitive during the week that on November 19, 20 and 22 sales of both electrolytic and lake were made at prices varying as much as 20 points. We quote lake to-day at 14c. and electrolytic at 13.75c. Casting copper is still scarce enough to make the price high, but not a great deal is being sold. We quote it at 13½c. This afternoon London cables declared the market there to be strong, and spot copper was sold for £59 2s. 6d. and futures for £60 5s. The sales amounted to 600 tons of spot and 4400 tons of futures. The exports of copper so far this month amount to 19,691 tons.

Pig Tin.—The United States Steel Corporation came into the market on Monday, both here and in London, and bought heavily. Orders were placed here for about 500 tons. It is a peculiar fact that whenever this interest makes a large purchase the market falls off somewhat directly afterward and the prices for the week showed gradual advances in the price of pig tin until the order was placed. On the afternoon the sales were announced the prices dropped 10 points, and yesterday it went down 10 points more. One of the factors that contributed toward the advancing price was the London situation. A large selling interest there was caught short and the speculators instituted a squeezing operation, which sent the market upward. The speculators were also interested in the Banca sale, which occurs to-morrow, when 2000 tons will be sold in Holland, but, despite their efforts to keep the market up, the Steel corporation's purchase upset their plans slightly. Whether they will succeed in strengthening the market before the sale to-morrow remains to be seen. Regardless of the speculators' transactions, consumers have been good buyers and inquiries indicate that more buying will follow shortly. The London market fell off sharply yesterday, there being a decline of £1 12s. 6d., which is equal to 35 points in New York. In London this afternoon spot tin was sold for £140 7s. 6d. and futures for £142 7s. 6d. The deliveries amounted to 400 tons of spot and 700 tons of futures.

Tin Plates.—There has beeen no further advance in tin plate on the part of the large interests, but deliveries are so restricted that some smaller producers are taking advantage of the situation and are getting as much as 20c. a box more than the regularly quoted price. Some good buying is being done and orders from can manufacturers are now coming in. For 100 IC coke plates we quote $3.84.

Lead.—Outside interests have reduced their price to that asked by the American Smelting & Refining Company, which is 4.40c. There are no reports of shading, but the market is weak, and it has been an easy matter all week to do business on that basis. In St. Louis the market is not very firm at 4.27½c.

Spelter.—Spelter is stronger. Some interests were asking 6.45c. on the 19th and some are still quoting 6.42½c., but we know of sales which were made to-day at 6.40c., New York. The demand for the metal is very good.

Copper Sheets and Copper Wire.—Copper sheets advanced November 17 to 18c. a lb. Copper wire was put up from 14½c. to 14.75c. on November 16 and on November 18 it went up to 15c. On November 23 a further advance of ¼c. was announced.

Antimony.—Antimony is selling better, but prices have not changed. Hallett's is 8.25c., Cookson's 8.30c. Other brands are about 7.75c.

Old Metals.—While prices advanced after last week's report was printed, the market has weakened in the past day or two. Following are dealers' selling prices:

	Cents.
Copper, heavy cut and crucible	13.00 to 13.25
Copper, heavy and wire	12.50 to 12.75
Copper, light and bottoms	11.75 to 12.00
Brass, heavy	9.25 to 9.50
Brass, light	7.75 to 8.00
Heavy machine composition	12.25 to 12.50
Clean brass turnings	8.75 to 9.00
Composition turnings	10.25 to 10.50
Lead, heavy	4.20 to 4.25
Lead, tea	3.90 to 3.95
Zinc scrap	5.00 to 5.25

The John A. Roebling's Sons Company, Trenton, N. J., has placed with Tate, Jones & Co., Inc., Pittsburgh, an order for an entire oil burning equipment for its six 30-ton open hearth steel melting furnaces. The same makers of oil burners have also received orders for the equipment of one open hearth furnace for the Lobdell Car Wheel Works, Wilmington, Del., and the equipment for one furnace for the Londonderry, Nova Scotia, plant of the Canadian Iron Corporation, thus adding to the already long list of open hearth steel furnaces for which they have supplied such apparatus.

Iron and Industrial Stocks.

NEW YORK, November 24, 1909.

Conditions in the stock market were proceeding favorably, with every indication of strength and advancing prices, until the judicial decision providing for the dissolution of the Standard Oil Company was announced on Saturday. This precipitated a decline and naturally induced a feeling of uneasiness which at least militates against much higher prices until the full effect of the decision is more definitely measured. The range of prices on active iron and industrial stocks from Thursday of last week to Tuesday of this week was as follows:

Allis-Chalm., com..	15 - 16	Republic, com.....	46⅜- 48¾
Allis-Chalm, pref..	53⅜- 57⅛	Republic, pref.....105½-106¾	
Beth. Steel, com...	33½- 35½	South. I. & S., com.	25¾- 27
Beth. Steel, pref...	67½- 68¾	South. I. & S., pref.	53⅞- 56
Can, com.....	13⅜- 15⅛	Sloss, com.....	88 - 92
Can, pref.....	83 - 85¼	Pipe, com.....	32½- 33¾
Car & Fdry, com...	73 - 75	Pipe, pref.....	84¼- 87½
Car & Fdry, pref.....119½		U. S. Steel, com...	87¼- 91⅝
Steel Foundries....	64½- 66¾	U. S. Steel, pref...124¼-127	
Colorado Fuel.....	47⅞- 52⅜	Westinghouse Elec.	84¾- 87
General Electric...160½-164¾		Va. I., C. & C....	73 - 75
Gr. N. ore cert....	79¼- 81¾	Chi. Pneu. Tool....	38 - 39
Int. Harv., com...107½-112½		Am. Ship, com.....	67½
Int. Harv., pref...122 -124		Am. Ship, pref.....111	
Int. Pump, com....	51¼- 53¼	Cambria Steel.....	46⅝- 47⅝
Int. Pump, pref...	89 - 90½	Lake Sup. Corp....	27½- 28
Locomotive, com...	60⅝- 62⅞	Penn. Steel, pref.....115	
Locomotive, pref...114 -115		Warwick	11
Nat. En. & St.,com.	21¾- 23	Crucible St., com..	13½- 14⅜
Pressed St., com..	52 - 54¾	Crucible St., pref..	84 - 86½
Pressed St., pref..105½-106		Harb.-W. Ref., com.....	35
Railway Spr., com.	50 - 53⅛	Harb.-W. Ref., pref.....	95
Railway Spr., pref.....108			

Last transactions up to 1.30 p.m. to-day are reported at the following prices: United States Steel common 87¾, preferred 124½, bonds 104⅞; Car & Foundry common 72, preferred 120; Locomotive common 60, preferred 114; Steel Foundries 64½; Colorado Fuel 48⅝; Pressed Steel common 51¾, preferred 106; Railway Spring common 50; Republic common 46½, preferred 105½; Sloss-Sheffield common 88; Cast Iron Pipe common 32½, preferred 84⅛; Can common 14¼, preferred 83¾.

Iron and Steel Bonds.

Chisholm & Chapman, 18 Wall street, New York, furnish the following quotations:

	Bid.	Asked.
Bethlehem Steel 1st ext. 5s, due January, 1926....	89⅞	90
Bethlehem Steel purchase money 6s, August, 1998..117		..
Buffalo & Susquehanna Iron 1st 5s, June, 1932....	..	99½
Buffalo & Susquehanna Iron deb. 5s, January, 1926	94	97¾
Dominion Iron & Steel 5s, July, 1929.....	95½	..
La Belle Iron 1st 6s, December, 1923.....104		104½
Lackawanna Steel 1st 5s, April, 1923.....	98	99
Maryland Steel 1st 5s, February, 1922.....102		..
Pennsylvania Steel 1st 5s, November, 1917.....	..	103
Pennsylvania & Maryland Steel 6s, September, 1925 ..		110½
Republic Iron & Steel 1st 5s, October, 1934.....101⅜		102
Sloss Iron & Steel 1st 6s, February, 1920.....106		..
Sloss Iron & Steel consol. 4½s, April, 1918.....	95½	..
Jones & Laughlin 1st 5s, May, 1939.....101½		102¼
United States Steel Corporation.		
Collateral Trust 5s, Series A, C, E, April, 1951....114⅝		115¼
Collateral Trust 5s, Series B, D, F, April, 1951....114⅝		115¼
Sinking fund 5s, April, 1963.....104⅝		104⅞
Union Steel 1st 5s, December, 1952.....104¾		105½
Clairton Steel 5s, 1908-1913.....100		..
St. Clair Furnace 1st 5s, 1910-1939.....100		..
St. Clair Steel 1st 5s, 1908-1926.....100		..
Illinois Steel deb. 5s, January, 1910.....100		..
Illinois Steel 5s, April, 1913.....100		..

All bonds quoted "and interest."

The earnings of the International Steam Pump Company for seven months ended October 31, show net $852,236, against $647,306 a year before, an increase of 30 per cent. October net was over $198,000, an increase of 100 per cent. over the average monthly net for preceding six months. In the company's best year the average net was $178,000 a month. Orders in recent months equal the present maximum capacity.

The report of the New Haven Iron & Steel Company for the fiscal year ending August 31, 1909, shows gross sales of $276,717, and net profits of $2827. The total surplus August 31 was $66,863.

Dividends.—The Railway Steel Spring Company has declared the regular quarterly dividend of 1¾ per cent. on the preferred stock, payable December 20.

The National-Acme Mfg. Company, Cleveland, Ohio, has declared a stock dividend of 20 per cent.

The Aluminum Company of America has declared a stock dividend of 500 per cent.

The Thompson-Starrett Company, New York, has declared the regular semiannual dividend of 4 per cent. and an extra dividend of 16 per cent. on the common stock, payable January 3.

The Wilkoff Brothers Company, Youngstown, Ohio, and Pittsburgh, dealer in iron and steel scrap, states that the report that it is negotiating for the purchase of the plant of the Shenango Iron & Steel Company at Wheatland, Pa., is absolutely untrue.

Meeting of the Technical Publicity Association.

The Technical Publicity Association held its second fall meeting on the evening of November 11, at the National Arts Club, 14 Gramercy Park, New York. There was an unusually large attendance at the informal dinner, which was followed by an interesting programme. The feature of the evening was a spirited debate on the merits of special issues of technical and trade papers. Arguments were supplied by several men of national reputation in the technical advertising field.

A novelty was the vote taken by the members of the association at the close of the debate. All were asked to confine their balloting strictly to the merits of the arguments presented. When the vote was counted it showed that 25 were opposed to special issues of trade journals and 10 in favor. One man voted "Yes, for real issues."

The argument was opened by James H. McGraw, president of the McGraw Publishing Company, who spoke for the affirmative. He declared that he believes in the special issue to a certain extent, but it must have three features to make it of extra value to the advertiser: It must have a legitimate reason for its publication, the editorial matter must be distinctive, and the extra circulation promised must be honestly given.

Robert Frothingham, advertising manager of *Everybody's*, made the first speech of those opposed to special issues. He spoke vigorously and his enthusiasm was infectious. He said: "The average special issue is a tactical blunder and has no place in twentieth century trade journalism. Some advertisers call it graft. It is a practical confession that the publisher is short-changing his readers in all his regular issues. If the matter is live and vital it ought to be in each issue."

J. George Frederick, managing editor of *Printer's Ink*, spoke earnestly in favor of special issues, but with certain limitations. He cited an instance where the diversity of interests in a particular field required special issues so that the editors might concentrate in separate numbers matter which could not well be presented otherwise. The abuses of the special issue he declared to be the exaggerated value to advertisers as represented by certain publishers.

L. F. Hamilton of the National Tube Company gave the point of view of a member of the Technical Publicity Association. He declared that, in his personal experience, special issues had been considered merely on their merits as regular editions at the time they were published.

The association elected a number of new members. In the absence of President Redfield, O. C. Harn, advertising manager of the National Lead Company, was toastmaster. Howard M. Post, chairman of the Publicity Committee, reported very satisfactory progress. He presented a portfolio of technical and trade paper comments showing graphically the increasing recognition of the Technical Publicity Association as a factor in the technical advertising field.

The National Car Wheel Company has purchased a 2½-acre site on the Lake Shore Railroad at 106th street, Cleveland, Ohio, and will at once begin the erection of a new plant to replace its present plant on Carter road, formerly operated by the Maher & Brayton Foundry Company. It will comprise a foundry, machine shop and other buildings. As the present equipment will be removed to the new plant, not much new machinery will be required.

Reports that the Youngstown Sheet & Tube Company, Youngstown, Ohio, is considering the purchase of the plant of the Shenango Iron & Steel Company at Wheatland, Pa., are officially denied. The former company has started work on a dam across the Mahoning River at Struthers to furnish a better water supply to its wire nail and wire plants there. The dam will be built entirely of concrete, of which over 5000 cu. yd. will be used.

The Duff Mfg. Company, North Side, Pittsburgh, has received a contract from the Philadelphia Rapid Transit Company, Philadelphia, Pa., for Barrett special emergency car jacks, one of which will be placed in each car operated by that company. The manufacturer last week commenced shipment of 500 on this order.

Labor Notes.

The Standard Steel Car Company announces that a 10 per cent. advance in wages at its Butler, Pa., plant will go into effect December 1. The increase applies to about 3000 men. It is stated that another 10 per cent. advance, which would bring wages up to the high level of 1907, will be made as soon as business warrants.

The George B. Lessig Company, Pottstown, Pa., advanced the scale for puddling at its mills November 22 to the basis of $4.50 per ton.

The first report made by J. L. Peetz, Indiana State Statistician, State House, Indianapolis, of the work done by the free employment bureau established by him covers the month of October. It shows 561 applicants for work and 530 applications from employers for help. Places were found for 231 applicants. Among these were 9 automobile workers, 1 blacksmith, 1 draftsman, 2 electricians, 3 engineers, 14 factory workers, 1 foreman, 1 ironworker, 15 machinists, 2 machinists' helpers, 2 plumbers. Among the places offered and not filled were the following: Automobile workers, 197; factory workers, 16; furnace tenders, 1; ironworkers, 12.

The bi-monthly examination of the sales sheets of the Republic Iron & Steel Company was made at Pittsburgh last week, and it was found the average selling price on shipments of iron bars in September and October entitles puddlers to an advance of 12½ cents a ton, or from $5.37½ to $5.50, during November and December. Wages of finishers are advanced about 2 per cent.

New Publications.

The Theory of Structures. By R. J. Woods. Pp. 276; illustrations, 157. Publisher, Edward Arnold, London, England. For sale by Longmans, Green & Co., 91 and 93 Fifth avenue, New York. Price, $3.

The author states that, while this volume is self-contained and independent, it forms a continuation of his previous work on "The Strength and Elasticity of Structural Members," being suitable for more advanced students and draftsmen engaged in structural design. The elementary principles and formulæ of the former volume are extended and utilized for the determination of the stresses in and the design of masonry and steel structures. The contents are treated in 15 chapters, which cover such subjects as principal stresses, stresses due to eccentric loading, girders of various types, wind pressure, maximum shearing forces, strength of riveted joints, heavy plate girders, strength of columns and design of arched ribs and braced arches. A complete chapter is given to the theory of reinforced concrete, with examples of beams, floors, columns and retaining walls fully worked out.

Downing's United States Customs Tariff, 1909. Publishers, R. F. Downing & Co., 24 State street, New York. Cloth; pages, 630. Price, $2.

Those interested in any way in tariff rates will find this volume a great convenience. It contains 20,000 items alphabetically arranged, giving rate of duty of each article by its trade name; full explanation of new features; references to all decisions; administrative provisions superseding the customs administrative act of 1890; Cuban reciprocity treaty; sealing act of November 29, 1897 (customs provisions); pure food act of March 3, 1903; list of parcels post countries; metric weights and measures for customs purposes; kilograms reduced to avoirdupois pounds; extension of pounds sterling, marks, Belgian, French and Swiss francs, Japanese yens, Mexican dollars, Austrian crowns, reduced at custom house standard rate. The firm has been publishing editions of this work for about 30 years, and a high reputation for its accuracy has been established.

The Machinery Trade.

NEW YORK, November 24, 1909.

The demand for machinery continued quite active the past week and merchants are much gratified at the steady volume of orders and inquiries received. While these covered, with few exceptions, small lots of tools, they were sufficiently numerous to impart to the trade a solidity which indicates quite clearly a rapidly growing demand. No large inquiries were received from the railroads, but an extensive list of tools was issued by the Bethlehem Steel Company and additional inquiries of importance were received from the International Steam Pump Company. These, with the tentative list of the Quincy-Manchester-Sargent Company, Plainfield, N. J., make quite an aggregate of tools being figured on. Though the month is not yet out, merchants report that thus far in November business has been better than any month for a long time; some say since before the recent depression. With trade made up principally of small orders from diversified sources it is impossible to estimate the amount of business being transacted, but an idea as to how the demand has greatly expanded in the past six months can be gained by the extended deliveries and depletion of stocks on manufacturers' floors. It is stated that many machine tool builders have sold practically all their stocks made up when business was dull and in some instances the amount of stock was only limited by storage space. One builder built and stored to its capacity several hundred of one class of tools and now has very few for immediate delivery. It is stated that new price-lists on some tools are being sent out and the impression in the trade is growing stronger that prices will shortly be advanced. As the close of the year approaches the tendency on the part of the buyer is to hold up delivery until the new year, in order not to have the purchase appear in this year's account. Much of this is being done and the practice is likely to be more common next month, but this is usual at this time of the year and in no way indicates any change in conditions.

From indications there is likely to be quite a demand in the future for woodworking machinery for the manufacture of aeroplanes. It is understood that many automobile builders are perfecting heavier-than-air machines with the view of placing them on the market, and already some have models undergoing tests. The automobile builders are well equipped to build these machines in small quantities, but should the demand reach the proportions expected the equipment will have to be augmented materially. It will not be surprising to see the automobile builders as important factors in the woodworking machinery market as they are in the machine tool trade.

Engine and boiler manufacturers are not getting much business from the general manufacturing trade at present, which is largely due to the fact that most of the machinery buying now being done is for additions to plants rather than new enterprises. Under such circumstances manufacturers hesitate to make additions to their power equipment where they can avoid it, as this entails extensive expenditures and some labor. The outlook is decidedly hopeful, however, as many large manufacturers are utilizing their power to the very limit, while others have in service old engines and boilers which would under ordinary circumstances go to the scrap heap. The fact that second-hand engines and boilers are very scarce denotes that many people in the need of power have purchased second-hand equipment rather than wait for engines which would have to be built to their order, and it is probable that a good many second-hand engines and boilers have been sold where, if the purchasers were not in such a hurry to get the equipment, new apparatus would have been bought. All conditions indicate that before long this branch of the machinery trade will be busy enough to suit all concerned.

Bethlehem Steel Company's Machinery List.

The most important feature reported in the trade the past week was the extensive list of machine tools issued by the Bethlehem Steel Company, South Bethlehem, Pa. A few weeks ago this company sent out inquiries for small lots of tools and it is understood that these have now been issued in the form of a list, with many tools in addition to those covered by the former inquiries. These tools are required for the equipment of a shop which is to be used for the manufacture of gas producer engines, which branch of the trade the Bethlehem Steel Company is preparing to go into on an extensive scale. It is understood that no expense will be spared in properly equipping this department with the best tools obtainable for the work. The specifications already prepared for the required machinery, it is stated, cover tools amounting to about $75,000. An extensive programme of new construction at its plants in South Bethlehem has been determined upon. Contracts were closed early this month for the erection of two 500-ton blast furnaces and a complete Bessemer steel plant to work in conjunction with the present open hearth steel plant. The improvements decided upon and the blast furnace work now in progress represent an outlay of $6,000,000, and will double the capacity of the South Bethlehem Works in rails and structural shapes.

Additional inquiries of importance for machine tools have been received from the International Steam Pump Company, New York, which has purchased quite a large amount of new machinery in the past month or two. It will be remembered that about two years ago the company prepared a list of machines amounting to about $50,000 and it is understood that about one-third of the machines on this list are being purchased, with others, the specifications for which were not prepared at that time. The machinery is not being purchased for enlarging the facilities of any special department, but are to be installed in the company's different plants to generally increase the efficiency of the various works.

Ground has been broken for the new plant of the Detroit Bridge & Steel Works, Detroit, Mich., to be erected at South Dearborn road and the Michigan Central tracks. The plant will be erected on a site of 10 acres and will consist of a main structure, 76 x 400 ft.; two other buildings, 50 x 150 ft. each; power plant, 30 x 60 ft., and a two-story office building, 30 x 60 ft., of steel and wood construction. The capacity of the plant at the start will be from 10,000 to 13,000 tons of structural steel and bridge material annually, and a force of about 200 men will be employed. Max J. L. Towler, 445 Vinewood avenue, who is at the head of the project, has spent a year personally preparing plans for the buildings, machinery, special tools and general arrangement. The material for the buildings has practically been arranged for, but Mr. Towler is not quite ready to place orders for the tools and other machinery that will be required for equipping the plant. Mr. Towler has had 28 years' experience in bridge work.

The Crocker-Wheeler Company, Ampere, N. J., has been placing some orders in this vicinity of late. The machinery which the company is buying is not for any extension to the company's works, but to provide additional manufacturing equipment in buildings already erected.

Considerable new machinery will be required for the Syenite-Trap Rock Company, Little Falls, N. Y., whose crushing plant was recently destroyed by fire. Crushers, screens, &c., for a large modern stone crushing plant will be installed, but further than this nothing has been decided, as the plans for rebuilding have not yet been completed. No boilers will be required, as the plant is operated entirely by electricity. John Thomlinson is superintendent.

The Lehigh Coal & Navigation Company, Philadelphia, Pa., intends to erect a power plant on its property near Nesquehoning, Pa., where small sizes of anthracite coal will be used for the generation of electric power. The plans have not yet been perfected and no details of the equipment that will be required are available. Rollin H. Wilbur is vice-president.

The town of Pulaski, Va., desires quotations on new and second-hand guaranteed machinery, with full dimensions and descriptions as follows: One 200-hp. tubular boiler, one 150-hp. horizontal engine for direct connection to 100-kw. alternator; one 100-kw. alternator, three phase, 60 cycle; one 75-kw. alternator, three phase, 60 cycle; six 5-kw. transformers, 60 cycle, and a switchboard suitable for these alternators.

The Board of Aldermen, Gulfport, Miss., will receive bids until December 7 for a direct connected two-stage turbine centrifugal pump and motor, the pump to have a capacity of 1500 gal. per minute under 100 lb. pressure, the motor to be alternating current induction type, three phase, 60 cycles, and a constant duty single suction volute pump having a capacity of 350 gal. per minute under 25 lb. hydraulic pressure, the pump and motor to be direct connected, the motor to be alternating current induction type, three phase, 60 cycle, 220 volts.

Plans have been approved by the State Canal Board for an additional barge canal contract providing for the excavation of about six miles of canal from Yellow Mills bridge to the Wayne-Monroe county line, at an estimated cost of $763,000.

It is understood that plans are ready for the construction of additional subways in New York. Contract plans have been prepared for the Broadway, Lexington avenue subway in Manhattan Borough and the Broadway, Lafayette avenue subway in Brooklyn, and the proposed extension of the Fourth avenue subway in Brooklyn to Fort Hamilton. The legal department is now engaged in drawing the forms of contracts for these routes.

The Consolidated Iron & Equipment Company, Mexico City, D. F., is arranging to build the largest cotton waste plant in the Republic of Mexico and is in the market for a general line of machinery equipment covering the manufacture of cotton waste.

Catalogues Wanted.—Julius Jonson & Sons, 3810

Broadway, New York, are to establish a plant in the vicinity of New York for the manufacture of soil pipe. A complete equipment for the plant will be required and the firm desires catalogues, prices, &c., from manufacturers of equipment used in such a plant.

The Positive Elevator Safety Company, 154 Nassau street, New York, intends to install a plant to manufacture its safety device and would be pleased to receive catalogues and prices from manufacturers of machinery suitable to the manufacture of such a device. Until its manufacturing facilities are in shape the company intends having them made by a reliable manufacturer and would be pleased to hear from such companies who are in a position to take up work of this nature. A branch office will be opened in Newark, N. J., which will be in charge of A. W. Koernig, treasurer, who for the present can be addressed box 933, Orange, N. J. The other officers of the company are Harry A. Wilkes, president, and Eugene R. Huckel, secretary.

New England Machinery Market.

BOSTON, MASS., November 23, 1909.

The machinery dealers outside of the zone of the automobile industry are finding deliveries receding in the sheets received from the manufacturers they represent, and realize that they have profited little by the market which has resulted in such conditions. Business in the New England field has still quite a way to go before it will equal that which contemporaries of the Middle West have enjoyed during the last six months, in the hungry absorption by the automobile builders of all types of tools which enter into their equipment. On the other hand, there is the comfort here of a constant improvement. The supply trade also continues to gain. Steam goods, such as brass and iron valves and fittings, are in strong demand, the market indicating not only a large amount of new steam construction, but a decided tendency toward putting existing power plants in the best of shape. Prices of these lines remain unchanged, except some advance in iron goods resulting from the higher cost of iron.

The dealers in cranes and other handling equipment complain that prices are low owing to severe competition. Bids are offered at figures much below list. It is not anticipated, however, that this sort of thing will continue long, the revival of general business being so rapid as to make it worth while for every one to maintain their lists.

The new works of the Windsor Machine Company, Windsor, Vt., manufacturer of the Gridley automatic turret lathe, will be on a large scale in order to take care of the rapid growth of the business, for which the present shops are no longer adequate. The main building will be 134 x 584 ft., one story, of brick, with concrete floor, and roof of saw tooth construction, giving a glass area of 16,000 sq. ft. An annex for locker rooms, &c., will be 25 x 85 ft., and there will be a power house. Breaking ground for the works was made the occasion of a celebration at Windsor, where a public holiday was observed, including closing the schools. Charles A. Moore of Manning, Maxwell & Moore, president of the company, held the handles of the plow which turned up the first earth, the horses being guided by Maxwell Evarts, the vice-president. Among the speakers were Messrs. Moore and Evarts, George O. Gridley, designer of the Gridley automatic, the company's staple product, and W. H. S. Craven of the Craven Brothers' Machine Works, Ltd., Manchester, England, the British representative of the business. The works will permit of the employment of 500 men.

The Dairy Machinery Construction Company, Derby, Conn., manufacturer of dairy machinery, will erect a new plant, consisting of a main building, 40 x 150 ft., two stories, a building 50 x 150 ft., one story, and a boiler house and testing room.

The H. J. Bailey Company, Pawtucket, R. I., has purchased what was formerly the upper works of the Mount Hope Iron Company, Somerset, Mass., including several acres of land, upon which there is a large tonnage of rolling mill cinders, which is being reclaimed and sold to the trade. One steam dredge is now at work excavating, and if this does not give sufficient supply to meet the wants of customers others will be added. The property contains several large buildings. The company has just been organized under Rhode Island laws, with H. J. Bailey, Pawtucket, and Arthur M. Allen and Rush Sturgess, Providence, as the incorporators. The office is in Pawtucket.

The Brosnihan Wrench Company, 21 Hermon street, Worcester, Mass., manufacturer of pipe wrenches, has taken additional space in its building and is adding to its equipment, some machinery having been contracted for and the purchase of additional tools being planned.

The Hotchkiss Brothers' Company, Torrington, Conn., manufacturer of sashes, doors, blinds and interior finish, will erect a new factory building, 56 x 108 ft., which will be used to increase in an important way the manufacturing capacity.

The Atlas Machine Company, Waterbury, Conn., has brought out a new style power bench press designed for punching, light stamping and especially for work where a uniform pressure is required. It is provided with a one-revolution clutch mechanism, so that only one stroke of the gate can be made with one depression of the foot treadle. The stroke of the gate is up to 2¼ in., the distance of the center of the gate to the upright 3 in., the hight of the bed to the end of ways 6 in. and bed surface 3 x 18 in.

W. H. Leland & Co., Worcester, Mass., have added to their product a line of high speed sensitive drills, the design of which contains a number of interesting details.

Recent announcements of industrial expansion outside of the metal trades include the following: Regal Shoe Company, Milford, Mass., new building which will be at least three stories; Nornay Worsted Company, Providence, R. I., new mill at Barre, Mass., 80 x 175 ft., to house 20,000 spindles; Monadnock Mills, Claremont, N. H., power plant; Coventry Mill, Anthony, R. I., addition; Worcester Bleach & Dye Works, Worcester, Mass., new plant.

The Malleable Iron Fittings Company, Branford, Conn., will erect a large foundry building, the contract for which has been let. The structure will be 125 x 155 ft., of brick, with steel frame and reinforced concrete roof.

The Deane Steam Pump Company, Holyoke, Mass., of the International Steam Pump Company, has placed the contract for an extension of its machine shop, one story, 90 x 180 ft., of brick and steel construction. The company is about to place contracts for a large iron foundry, with pattern storage and stockhouse.

The New York, New Haven & Hartford Railroad has received bids for a trolley car barn and repair shop to be located on Congress street, Bridgeport, Conn. The building will be 240 x 330 ft., and will be of concrete. The cost will be $100,000.

John A. Hurley, Inc., Bridgeport, Conn., manufacturer of tubular lanterns and food choppers, is adding two stories to a part of its building, to give more floor space, required because of the subletting of a part of the building.

The McCrum-Howell Company, Park avenue and Forty-first street, New York, manufacturer of boilers, radiators and enameled ware, has increased its capital stock from $1,200,000 to $3,000,000. The company operates a plant at Norwich, Conn., and two plants at Uniontown, Pa. The foundry for big tubs at the enameled ware plant, Uniontown, will be lengthened 120 ft., and a new foundry half that size will be erected for lavatories. The foundry at the radiator plant will also be extended to increased capacity to a considerable extent. The proceeds of the new stock, which has already been acquired by banking interests, will be used to anticipate a bond issue which has not yet matured and to increase working capital. The company is a Connecticut corporation. The growth of the business has been very rapid, the increase of the business this year over last being 45 per cent., and 1908 was better than the previous 12 months. The contemplated improvements will increase capacity about one-fourth.

The H. A. Matthews Mfg. Company, Seymour, Conn., is putting in presses which will permit of the manufacture of automobile parts and similar products. They will cut and draw such parts as brake drums from ¼-in. stock as large as 16-in. diameter. One of the double acting cam presses is said to be the largest of its kind ever built. Most of the machinery which is to be installed has been contracted for the new building, already mentioned in this column in connection with the extension of the company's line of product, will be 60 x 102 ft., two stories, of cement construction, including a roof of cement shingles. The company manufactures sheet steel bicycle fittings and stove trimmings of steel and brass, and has gradually worked into automobile specialties.

The Union Water Power Company, Lewiston, Maine, has purchased the water power at Clark's rips, eight miles from the city, and, according to a newspaper dispatch, will develop it for a hydroelectric plant, which may produce 11,000 hp. It is understood that the project is preliminary to the establishment of large textile mills.

Officers of the New York, Boston & Cape Cod Canal Company are authority for the statement that the work of construction of the Cape Cod canal will be pushed as rapidly as possible, and that it should be ready for use in the spring of 1913. This waterway should have an important influence on the coastwise freight routes. The project is also interesting from the fact of the engineering work which will be involved and the large quantities of supplies and equipment which will be used.

The merging of the Providence Machine Company, Providence, R. I., into the Whitin Machine Works, Whitinsville, Mass., already mentioned in this column, is now officially announced. The absorption of the smaller company is an important move in the textile machinery industry of New England. The property of the Providence Machine Company has recently been estimated at $800,000, though the capital stock is but $350,000.

The American Motor Company, Brockton, Mass., manufacturer of motor cycles, has completed a building 50 x 100

ft., two stories, and plans are making for a second structure of the same size.

Philadelphia Machinery Market.

PHILADELPHIA, PA., November 23, 1909.

The trade on the whole reports a somewhat better volume of business during the past week. There has been little of importance individually, the bulk of the orders being of the single tool nature, but which in the aggregate, however, reached better proportions than has recently been the case. Quite a little business, which has for some little time been hanging fire, developed into orders, and the trade feels better satisfied with the situation, notwithstanding the fact that it has not yet reached a normal basis. Sales by merchants cover quite a wide range of equipment, no particular line of tools being in special demand. The promptness with which deliveries can be made is becoming quite an important factor in recent transactions, some merchants, particularly those representing tools made in the West, note continually hardening deliveries, which have interfered in a number of cases in the final closing of orders. There is a fair volume of new business both under consideration and in sight, although few large propositions are to be noted. The railroads, while active buyers of rolling stock and motive power, have as yet done little—as far as those whose headquarters are located in this territory are concerned—in the way of adding to their machine tool equipment, although they are reported as being much more actively engaged at their respective shops. In some instances a considerable program for next year has been mapped out, and it is to be noted that the Pennsylvania Railroad has planned to build 43 locomotives at its Juniata shops.

Manufacturers of machine tools in this district are gradually becoming more fully engaged. A number of plants are steadily adding to their force of employees, but the statement is pretty generally made that good mechanics are scarce. Special tool builders note a better run of orders, the bulk of the business, particularly in tools of the larger type, coming from customers outside this immediate territory. The demand for tools for export continues of an unimportant character. Special tools for some classes have been in scattered demand, while that for power transmission equipment continues fair.

With increasing delays in deliveries for some classes of new tools a trifle better demand for second-hand equipment is expected to develop; in some lines a little betterment is to be noted, although business is still of a somewhat irregular character. There is still no particular movement in second-hand engines, although boilers of the medium capacities are fairly active. There is a fair amount of new business in sight for boilers and engines of moderate horse power for installation in proposed plants; these, however, develop into business rather slowly.

The foundry trade maintains its recent gains and in some directions shows a little more activity. Steel casting plants now have, for the most part, a very fair volume of business on their books, orders from car, locomotive and heavy machinery builders showing a steady increase. A slow but steady gain in tonnage of orders is reported by general gray iron foundries, while those making a specialty of machinery castings are also better engaged.

The Fairbanks Company notes an improved demand in many of its departments. This company has completed arrangements by which it assumes the selling agency in the Philadelphia territory of the Buffalo Foundry & Machine Company, Buffalo, N. Y., for its line of steam hammers, which comprises the David Bell line, as well as a number of improved and new designs.

The Bentleyville Water Company, Bentleyville, Pa., has under consideration the construction of an electric light plant, also an extension to its facilities for water storage.

The Department of Supplies of Philadelphia, Joseph H. Klemmer, director, will receive bids until December 1 for equipment for delivery during 1910. These include under class R, tapping machines and fittings, caulking machines, lead melting furnaces, chain hoists, pipe jointers and cutters and general supplies, fire extinguishers, receivers and other fire department supplies, window ventilators, &c.; under class T, garden, water, steam, gas, suction and chemical hose, leather, rubber and canvas belting, belt hooks, washers, packing of all kinds. Full specifications and samples are to be seen and obtained at the office of the director, room 310, City Hall, Philadelphia.

A. F. Hammond, superintendent of supplies, First School District, Philadelphia, Pa., will receive bids until November 30 for supplies for use during the coming year, among which is included tools, pipe covering, scientific apparatus, &c.; also a Wimshurst machine, galvanometers, vacuum tubes, &c., for the Northeast Manual Train School. Specifications, samples, &c., may be obtained on application to the superintendent, room 392, City Hall.

The Vulcan Charcoal Iron & Steel Company, Crum Lynne, Pa., is in the market for a three-motor electric traveling crane, 20 to 25 ton capacity, 27 to 35 ft. span; also for an electric power and lighting unit of about 50-kw. capacity. The company's product will be charcoal iron, sheet and tin plate bars and charcoal skelp.

Ballinger & Perrott, engineers, have invited estimates for the erection of a group of buildings to be erected for Samuel Courtauld & Co., silk manufacturers, who will establish a plant at Marcus Hook, near Chester, Pa. The following buildings will be erected at this time: Main building, 130 x 400 ft., one story, adjacent to which will be an engine house, 54 x 100 ft., and boiler house, 65 x 90 ft., both one story. There will also be a winding and sorting building, 76 x 131 ft., five stories in hight, and two other manufacturing buildings, one 64 x 100 ft., one story, and the other 42 x 71 ft., two stories and basement.

The Baldwin Locomotive Works has booked an order for 50 engines to be built for the Pennsylvania Lines west of Pittsburgh; several other small orders have also been taken and the general demand is in more satisfactory shape. This concern has been steadily increasing its forces and now has a total of 10,000 employees at its local and Eddystone, Pa., plants.

Cleveland Machinery Market.

CLEVELAND, OHIO, November 23, 1909.

Local machinery houses have done a good volume of business in small orders during the past week. Inquiries are largely for medium sized tools for quick shipment. While there is considerable buying of a scattering nature, the bulk of the orders are coming from industries affiliated with the automobile trade. While no large inquiries are pending, a fair amount of business is still coming from some of the automobile plants that are increasing their capacity. There is also a fair demand for small tools for equipment for new garages. The general demand for machinery from industries that have no connection with the automobile trade is slowly broadening. Many of the shops are planning small additions which will require the purchase of more machinery equipment. Some of the larger manufacturing establishments in metal working lines are also buying more freely. While not a large number of orders are coming from the railroads the local tool builders report an improvement in the demand from this source. There is a steady demand for second-hand tools; few are being placed on the market, and in many cases buyers have trouble in finding what they want in used tools.

The foundry trade is holding up well. Local foundries making heavy iron and steel castings, as well as light gray castings, have about all they can do.

The Board of Managers of the Ohio Penitentiary at Columbus, Ohio, will receive bids on December 16 for new power equipment for that institution. Plans and specifications are on file at the offices of Marriott & Allen, 20 East Broad street, Columbus, Ohio, the Osborn Engineering Company, Cleveland, and the warden of the penitentiary. The bids will be for the following equipment: Two direct connected units consisting of alternating current generators and cross compound Corliss engines, two turbo-generators, two boiler feed pumps, one feed water heater, one electric traveling crane and four automatic stokers.

The name of the Armington Electric Hoist Company, Euclid, Ohio, has been changed to the Euclid Crane & Hoist Company, which was recently incorporated with a capitalization of $10,000 to take over the business of the former company. The company has enlarged its plant, having now about 6000 sq. ft. of floor space, and is prepared to make cranes and hoists of all types.

The Cyclone Drill Company, Orrville, Ohio, reports that its November business has been the largest in its history, and that there is unusual activity in the purchase of drilling outfits for all purposes. Among the shipments for the month are the following: Five drilling machines for blast hole work on the Panama Canal; six blast hole drills, Rio Tinto Company, for railroad construction in Spain; two blast hole drills, Walsh Construction Company; two blast hole drills, Boynton, Church & McCoy; one large prospecting outfit, Mangas Development Company; one core drilling outfit for Haiti; one blast hole drill, W. A. Denison, for railroad work in Texas; one prospecting machine, Southern Development Company; one water well drill, Snider & Larson; one prospecting machine, J. D. Pitts, and one water well drill for Francisco Gamaz.

It is announced from Columbus that the plant of the Kinnell Edge Tool Company of that city has been purchased by Charles C. Green, president and general manager of the West Mfg. Company, and will be moved to the prop-

erty of the latter company. The company manufactures butchers' edged tools.

The Goodyear Tire & Rubber Company, Akron, Ohio, announces that the growth of its business requires extensive additions to its plant, and that it is planning the erection of two large factory buildings that will provide 150,000 sq. ft. of additional space.

It is announced from Paulding, Ohio, that the German-American Sugar Company will erect a large plant in that place, for which the contract has been let.

The Anhut Motor Car Company is the name of a new Detroit concern that will make automobiles. The company is located on Howard street. It will buy the most of its parts.

The Croxton-Keeton Company, Massillon, Ohio, maker of automobiles, has placed orders during the week for additional machine tool equipment aggregating about $12,000.

The White Sewing Machine Company, Cleveland, has awarded contracts for the erection of a new plant at East Seventy-sixth street and St. Clair avenue, adjoining that of the White company, manufacturers of automobiles, controlled by the same interests. The new plant will provide about double the capacity of the company's present factory on Canal road, which will be abandoned and leased for other purposes. The equipment in the old plant will be moved to the new factory.

Milwaukee Machinery Market.

MILWAUKEE, WIS., November 23, 1909.

Several concerns here have recently reduced their sales force, and others are about to do so, for the reason that in many lines deliveries from the shops are considerably behind orders and, until additions now under way are completed, there will be no object in seeking any more business than the daily mail brings.

With this condition generally known to exist, prices are unaccountably slow in reaching a corresponding level. In fact, local machinery houses, including some of the tool builders, have recently lost contracts upon which they made relatively low offers. In each of the instances cited this appears to have been owing to the fact that the successful bidder was put in line for a great deal of future business from the same source, but that does not explain the general failure of prices to rise as they should. Some authorities here say that the situation can lead to but one thing, viz., a sharp advance later on, or as soon as it is realized by both manufacturers and buyers that the practical limit of shop facilities is rapidly being reached in all parts of the country and particularly in the larger centers of production.

Repair part business, which until recently was sought with great avidity, is no longer welcomed, and the time usually demanded for supplying parts that are not carried in stock is sufficient to divert much of this trade to small local shops. As an indication of heavy orders for new machinery already booked or in sight, this neglect of profitable repair work is an infallible sign.

Up to the present time there has been little complaint made in this State of inability to obtain sufficient deliveries of material to keep pace with the requirements of the shops, but several manufacturers now assert that they find difficulty in getting what they need for the immediate future. Sheet metal of all kinds is scarce, particularly steel of the grades used for boilers, tanks, feed pipes, &c. This condition affects the smaller establishments much more than the large plants, as heavy purchases were made by nearly all of the latter early in the season, and they are well provided for. In respect to most of this material, also, the concerns which exercised the greatest degree of foresight are able to figure an appreciable profit on the basis of prices now obtainable for their finished products, as compared with those ruling a few months ago.

One result of the recent depression which exerts a very favorable influence upon the situation at this time is the increased standardization of specifications for billets, bars and other material bought upon both physical and chemical tests. During the period when it was absolutely necessary to carry as small stocks as possible, machinery builders in Milwaukee and other industrial centers of Wisconsin found that they could get along very well for most purposes with a few standard grades, the forging and machining qualities of which were satisfactory, instead of dividing specifications to the extent that they had; and, as a matter of shop economy, this policy of concentration in buying worked to the decided advantage of all concerned. At present, except for the growing tendency to use special alloy steels, it has become established practice.

Another notable tendency on the part of machinery builders here is to restrict the buying of tool steel to a limited number of grades, and a disposition has been manifested of late to join in any national movement that may be started for the elimination of unnecessary refinement in specifications, thereby enabling both dealers and users to come to a better understanding.

Railroad men connected with various maintenance and motive power departments, quite a number of whom have recently been here, singly, on tours of inspection, are unanimous in stating that there will be heavy buying of shop, yard and roundhouse equipment shortly after the first of the year, funds for the purpose having already been voted by the directorates of several of the largest roads. Among the more important of new projects mentioned is the building of shops at Bay City, Mich., by the Michigan Central Railroad, plans for which are said to have been completed.

At the plant of the Nordberg Mfg. Company, which is equipped this season to handle a much larger volume of business than heretofore, inquiries for hoists and compressors, as well as Corliss engines, are coming in very freely from the mining regions to the North, Northwest and Southwest. It is predicted by one of the shop superintendents that trade for the coming year will be largely in excess of any previous record.

Plans for the extension of the Power & Mining Machinery Company's plant at Cudahy, Wis., a site of about eight acres to accommodate which was purchased some months ago, will probably be carried into effect before the end of the coming year. Modernizing of the equipment in the present works, some of which was installed a good many years ago, is also said to be contemplated. The company's business of late has been very heavy and excellent prices are now being realized for its products in all lines.

Some additional machinery, the specifications for which have not yet been worked out, will be purchased before long by the William Rahr Sons Company, Manitowoc, Wis.

Pawling & Harnischfeger, Milwaukee, the addition to whose plant was recently reported, are making preparations to manufacture on an extensive scale the new combination boring and drilling machine which they have introduced into most of the larger shops in this vicinity, with very satisfactory results to the owners of the latter, as independently reported. Thus far this firm has been known almost entirely as a crane builder, but in future its other lines will be given more prominence.

E. A. Edmonds of Appleton, and Henry J. Brown of Marinette, Wis., are said to be organizing a company for building a hydraulic power plant of 5000 kw. capacity on the Menominee River near Marinette. Impulse turbines operating under a low head, direct connected to electric generators, would be the only type of power equipment suitable for that location.

A contract for one of the most extensive lines of power transmitting machinery on the mechanical system used at any plant in this State has been let to the C. A. Lawton Company, De Pere, Wis., for the new Lindauer mill at Little Rapids, near Kaukauna, Wis.

The project for a plate mill in Milwaukee has been revived, but nothing definite can be learned as to who is back of the enterprise. Formerly the Milwaukee Corrugating Company, or capitalists connected with it, were said to be interested. The engineer who drew the original plans was then, or had been, in the employ of the Berger Mfg. Company, Canton, Ohio.

A number of concerns here, which have not had sprinkler systems, contemplate putting them in this season. Manufacturers of such apparatus will find this a good field for the introduction of their product.

The Allis-Chalmers Company has been awarded contract for the new triple expansion pumping engine, having a lift of 12,000,000 gal. daily, to be installed in the North Point station of the Milwaukee water works. The auxiliary equipment does not appear to have been as yet provided for, as installation will not be made for a year.

Contract for the new steel bascule bridge at Michigan street was lost to the regular bridge companies that bid on the work, being awarded to A. H. Vogel of the Starke Dredging & Dock Company, Milwaukee.

With the closing for repairs of the principal viaduct across the manufacturing district, many large plants in the Menominee Valley are practically cut off from adequate fire protection, and the installation of a high pressure pumping plant for that district is being considered.

The Prime Steel Casting Company, Milwaukee, has acquired the plant and interests of the Dutcher Steel Casting Company, so that its future product will consist of both open hearth and crucible steel castings.

A new factory, with power equipment and the probable use of electric motor drive replacing the gas engine system used in the present plant, is to be built at Delavan, Wis., by the Bradley Knitting Company. A heating plant will also be required.

Some new apparatus will be purchased by the Consolidated Sheet Metal Works, Milwaukee, on or before completion of its new plant.

Although no official statement has been made to that effect, it is probable that quite a number of new tools will be gradually added during the coming year to the equipment of the West Milwaukee shops of the Chicago, Milwaukee & St. Paul Railroad, and that electric drive will displace belting in more departments of the works. In the latter respect the plant is far from being up to date.

At the rate in which orders are now being received, the Wisconsin Sheet Metal Works will be compelled to increase its capacity, including the purchase of some new machinery.

The Cream City Foundry Company, whose organization was recently reported, has let contract for a building 70 x 160 ft. Cupola and complete equipment for an iron foundry will be installed.

Chicago Machinery Market.

CHICAGO, ILL., November 23, 1909.

The general broadening out in the demand for machine tools has diverted attention for the present from the remarkable falling off in purchases by automobile manufacturers, but there is still a good deal of discussion among machinery dealers of the business situation in the automobile trade which underlies this condition. Last summer and fall the purchases for automobile shop work were very heavy and proved a source of great satisfaction at a time when other business was light, but in October this business suddenly dropped off and very little has been done in this line during the present month. Very optimistic reports come from the automobile trade regarding the prospects for 1910, and many of the large concerns have already sold all the cars they will be able to produce the coming season. Many of the old observers of the machinery trade, however, insist that the automobile as a purely pleasure vehicle must soon reach the limit of expansion in sales, especially for the high-priced cars that represent the larger portion of the business. There is necessarily a limited number of people who can afford the first cost of a high-priced pleasure car, and also bear the operating expense and the large social expenditures which it entails. The revival in business will scarcely increase the number of people in this class in the same proportion as the increase in the output of cars of this type.

The machinery dealers foresee that there must be a change in the near future in the direction of this trade expansion. There is an unlimited market in the country for low-priced cars. More pianos are sold now in the country than in the cities, but the automobile in country use fills an economic field in which only a small percentage of city cars are engaged. There is also a great opportunity for expansion in the direction of trucks, both heavy and light, for use in cities and to some extent in the country. It is anticipated, however, that more or less readjustment in shop facilities will be necessary to develop either the city truck trade or the country field for low-price cars, and many students of the industry from the standpoint of the machine tool trade believe that the automobile manufacturers are looking forward to this readjustment before making any further extensive investments in shop equipment.

Still another explanation has been advanced, however, which, after all, may be the correct one. It is possible that the manufacturers already have the necessary facilities to work up all of the material that they will be able to assemble for their 1910 trade. Even in normal times it is no small task to bring together all the material that goes into an automobile, and under present conditions the industry may have reached the limit of supply for the coming year.

A new company has been organized at Waterloo, Iowa, to be known as the Waterloo Malleable Iron Works, for the manufacture of overhead pulleys, belts, transmission and machine shop equipment. The company is building two foundries, one for gray iron castings and one for malleable. The equipment of these foundries will be complete and up to date in every way, and molding machines adapted to the company's particular line of work will be installed. The machine shop will be equipped with special and automatic machinery for the manufacture of transmission. It is stated that the plant will contain about 40,000 sq. ft. of floor space and will probably be completed in about 90 days. It is the intention of the new company to locate agencies throughout the United States to handle the product. D. G. Langlands, president of the James H. Roberts Company, Boston, Mass., is president and general manager.

The Lake Shore & Michigan Southern Railroad, which purchased a tract of land at Elkart some time ago, will develop shop facilities at that point the coming year.

Improvements now in the course of construction by the Chicago, Burlington & Quincy Railroad at Havelock, Neb., include a machine shop, 216 x 602 ft.; store house, 80 x 502 ft., and a power house, 85 x 120 ft. Foundations for the machine shop are already in place, and it is expected that the building will be completed not later than July 1, 1910, at which time the company will probably require a considerable amount of new equipment. Other improvements being made at that point consist of a roundhouse, coal chutes and new yards, the former of which has been completed. The company will probably have the new yards ready for occupancy some time in December.

The Imperial Car Company, Chicago, has awarded the general contract for the construction of a new shop, 50 x 125 ft.

The Luken Steel Window Company, 77 Jackson street, Chicago, has purchased a site containing five acres at the corner of Fifty-sixth avenue and Twelfth street, on which will be erected a new factory in the near future for the manufacture of patented metal window frames and window sashes. Construction work upon the building will be commenced about January 1 and rushed to completion, it being the intention to have the plant in operation early in the spring.

The Procter & Gamble Soap Company, Cincinnati, Ohio, is preparing plans for a two-story blacksmith and machine shop, 50 x 200 ft., to be erected at Armourdale, Kan., which will cost $50,000.

The American Radiator Company, Chicago, is having plans prepared and will commence work immediately upon the erection of a branch factory at Kansas City, Mo., for the manufacture of radiators and house heating cast iron boilers. The initial buildings of the plant which will be erected at a cost of about $300,000, will cover an area of five acres and will be fireproof, of brick and steel construction. Most of the equipment to be installed will be manufactured by the company, but a considerable amount will be purchased from outside interests.

The Globe Metal Company, Chicago, refiner of brass and copper, has purchased a tract of land, 124 x 140 ft., on Clybourne avenue, on which will be erected a plant similar to the one now operated at 1334 West Lake street, but on a much larger basis, as the rapidly increasing business of the company calls for more adequate facilities. Plans for this improvement, however, have not been worked out as yet.

Frank S. and Anthony Biggo, Chicago, have purchased from the Barnum & Richardson Mfg. Company a strip of land, 50 x 150 ft., on the east side of Jefferson street, on which they contemplate the construction of a new building, four to six stories high, to be occupied as a machinery warehouse, to cost $50,000 to $60,000.

Sealed proposals in triplicate will be received until December 14 by Captain Chase Doster, Constructing Quartermaster, U. S. A., Fort Logan, Colo., for the construction of a pump house to be erected at that place. All bids will be received in separate sections, which are as follows: Section 1, construction of building; section 2, plumbing in building; section 3, electric light wiring in building; section 4, boilers and appurtenances; section 5, air compressors, steam pumps, piping, &c.; section 6, alternate bid for electric motors, air compressors, pumps, piping, &c.

Bids are being received by Robert W. Lysle, 98 Jackson boulevard, Chicago, for entire light and power plant to be erected for the Fremont Power & Light Company, Fremont, Ohio.

Cincinnati Machinery Market.

CINCINNATI, OHIO, November 23, 1909.

From the viewpoint of the manufacturer, the machinery trade is in a most satisfactory condition, save possibly for the uncertainty regarding outlook in help and prices on crude material, which suggest to some a necessity for an early revision of prices on the finished machine. The dealers pronounce the situation most promising. This is evidenced in some cases by the volume of sales; in others by the outlook for business through inquiries from shop districts in which extensive improvements or actually new shops are under consideration for the early year. Upright drills are keeping up their phenomenal records, manufacturers building the high speed heavy duty types being booked as far ahead as March. Radials are not so popular. There has been an improvement in planers, and some manufacturers are very busy on this line of heavy tools.

One of the largest lists of machine tools placed in this district for early delivery, that for the Bullock Electric plant of the Allis-Chalmers Company, is now being installed. In the rearrangement of the big factory at Norwood suburb, special attention was devoted to providing better facilities for the tools; and this new department, which is one of the most needed, will soon be running full; and installations are being made as rapidly as deliveries can be secured. In the power department additional boilers will be needed of about 500 hp. A 200-ft. extension is being made to the foundry and some additional molding machines which have been purchased will be installed. A one-story extension has been provided for the winding room building, known as No. 2. The present force is 1850, an increase of about 900 in the last four months, and when the new additions and facilities are completed and installed the payroll will be 2500.

A characteristic of the late local machinery market has been the trend of trade westward; that is, comparatively little business has come out of the East, and nearly all of it from the other points of the compass. In the shaper line practically all the domestic business this month comes from points

west of Pittsburgh. The lathes, drills and shapers ordered this month, aside from the special lists, have been largely for installation in automobile repair shops and general machinery plants.

Among the downtown manufacturing establishments which have made great strides in late years is the Victor Safe & Lock Company. This company owns a 15-acre tract in Norwood, and, as it is generally known, will build a large plant thereon.

The Lunkenheimer Company has gone ahead with its several important improvements, some of which were in progress during the financial depression, and realize now the wisdom of its course and its stand to have been well taken. The large building of concrete, which has been described in these columns, has been finished, and it is expected to be ready for occupancy soon after the first of the year. It is said to be one of the largest and finest buildings in the world devoted exclusively to brass foundry work, and the machinery and appliances are all the most modern obtainable.

The reorganization of the American Laundry Machinery Mfg. Company, which controls about 70 per cent. of the laundry machine business of this country, has been completed in Cincinnati, which is now headquarters of the company, which has large plants in Rochester, Norwood and Chicago. The capital is $8,000,000, of which $2,000,000 is a 7 per cent. cumulative preferred stock; the remainder common. At the Cincinnati meeting last week all the assets, business and good will of the old corporation were transferred to the new. D. M. Cooper of Rochester, N. Y., was elected president, succeeding Adam Kreuter of Chicago, who will have charge of the Chicago plant. E. B. Stanley of Cincinnati was made chairman of the Executive Committee. A. Kreuter of Chicago, E. B. Stanley and L. B. Smith of Cincinnati, with T. D. Wells of New York, were elected vice-presidents; E. F. Underhill, secretary, and R. M. Burton, Cincinnati ,treasurer. The directors are: W. M. Barnes, R. M. Burton, D. M. Cooper, A. T. Hagen, Chas. A. Hinsch, A. Kreuter, C. J. Miller, R. S. Nelson, L. S. Smith, E. B. Stanley, E. F. Underhill, T. D. Webb and W. W. Riley.

The dealers report a generally satisfactory business in new tools, with no particular type a leader. Buyers are insistent for the earliest possible deliveries.

The foundries are all engaged, the most of them to the limit of their cupola capacity, and pourings are more largely going into machine tool castings. The average heats are from 10 to 15 tons daily, and a few foundrymen will make extensive additions to permit of handling more business.

Reports indicate that the Bass Foundry & Machine Works, Fort Wayne, Ind., is enjoying a special run of good fortune, every department running to full capacity, except the machine shop, which is giving daily evidence of improvement.

It is reported from Columbus, Ohio, that the plant of the Ralston Steel Car Company in the East End is operating practically to capacity, and that steps may be taken in the near future to increase it, as indications point to a considerable increase in the use of steel cars. The statement is made that the company has orders on its book at the present time for over $2,500,000 of new business. A late order is for 500 box cars for the Pennsylvania lines west of Pittsburgh; another for 500 cars for the Baltimore & Ohio. An order for 1000 cars from another road is said to point to an additional order of 1000. An order for 300 flat cars is from the Interborough Railroad of New York, to be used in construction and repair work.

The Terre Haute (Ind.) Boiler Works has purchased additional ground and has begun the erection of a brick building. It is estimated that about $6500 will be expended in these improvements, which will include some machinery.

It is reported from Terre Haute, Ind., that the Braden Mfg. Company, builder of down spouts, gutters and similar building material, will erect a larger plant, three stories, with floor space of 50,000 sq. ft. The company expects to add a department for the building of galvanized tanks and like products when in its new plant, which will be several times larger than the present quarters at Fourteenth and Tippecanoe streets.

Arrangements for doubling the capacity of the Angldile Computing Scale Company, Elkhart, Ind., contemplate the addition of some machinery.

Government Purchases.

WASHINGTON, D. C., November 23, 1909.

The Isthmian Canal Commission will receive bids until January 3, Circular No. 543, for a 10-yard dipper dredge.

The following bids were opened November 12, Circular No. 542, for machinery for the Isthmian Canal Commission:

Class 1.—Pumping plant complete—Bidder 8, Camden Iron Works, Camden, N. J., $6500, or two 5-in. two-stage centrifugal pumps, $6000; 9, D'Olier Engineering Company, Philadelphia, Pa., $4674 and $5376; 15, Manning, Maxwell & Moore, New York, $3360 and $3390; 21, Watson-Stillman Company, New York, $4500; 22, Henry R. Worthington, New York, $2988; 24, Janesville Iron Works Company, Hazelton, Pa., $4280.

Class 3.—One pipe cutting and threading machine—Bidder 4, F. S. Banks & Co., New York, $114.95; 6, Berry & Aiken, Philadelphia, Pa., $107.50; 11, Fox Brothers & Co., New York, $120, $122.50 and $137.50; 12, Francis T. Witte Hardware Company, New York, $95; 14, Knox & Brother, New York, $92; 15, Manning, Maxwell & Moore, New York, $94; 16, Motley, Green & Co., New York, $96.75; 18, Tucker Tool & Machine Company, New York, $98.45; 20, Vermilye & Power, New York, $90; 25, Drew Machinery Agency, Manchester, N. H., $111.

The following bids were opened November 13, Circular No. 542B, for a steam hammer, milling machine and planer for the Isthmian Canal Commission:

Item 1.—One 800-lb. steam hammer—Buffalo Foundry & Machine Company, Buffalo, N. Y., $1099.79; Drew Machinery Agency, Manchester, N. H., $1325; Fairbanks Company, New York, $1685; Fox Brothers & Co., New York, $1224; Manning, Maxwell & Moore, New York, $1398; Morgan Engineering Company, Alliance, Ohio, $1275; Motley, Green & Co., New York, $1334.50; Niles-Bement-Pond Company, New York, $1023.

Item 2.—One universal milling machine—Drew Machinery Agency, Manchester, N. H., $1008; Fairbanks Company, New York, $967; Manning, Maxwell & Moore, New York, $1135 and $935; Niles-Bement-Pond Company, New York, $885 and $1205; Prentiss Tool & Supply Company, New York, $1290.

Item 3.—One 30 x 30 in. planer—Drew Machinery Agency, Manchester, N. H., $1650; Fairbanks Company, New York, $1612; Fox Brothers & Co., New York, $1689; Manning, Maxwell & Moore, New York, $1633; Niles-Bement-Pond Company, New York, $1582; Prentiss Tool & Supply Company, New York, $1675.

The following bids were opened November 16 for machinery for the navy yards:

Class 111.—One plain milling machine—Bidder 193, Pratt & Whitney Company, Hartford, Conn., $1156.

The following bids were opened November 12 for two 6-in. pumps for the Isthmian Canal Commission:

Alberger Pump Company, New York, $3209; Buffalo Steam Pump Company, Buffalo, N. Y., $3200 and $3600; Camden Iron Works, Philadelphia, Pa., $2985; D'Olier Engineering Company, Philadelphia, Pa., $3278; Manning, Maxwell & Moore, New York, $3578 and $3356.78; Watson-Stillman Company, New York, $3400 and $3250; H. R. Worthington, New York, $2674; Allis-Chalmers Company, Milwaukee, Wis., $5080 and $4450; Janesville Iron Works Company, Hazelton, Pa., $3942, $3532, $3872 and $3483.

A Contrast in Mine Fans.

The McLean County Coal Company, Bloomington, Ill., recently replaced a 40-ft. mine ventilating fan with a 72-in. Sirocco patent double inlet mine fan, with a very considerable saving in space, amount of masonry necessary for its installation, and power required.

The old fan had a maximum capacity of 40,000 cu. ft. of air per minute at 2.3 in. water gauge and was driven by a 125-hp. engine. It discharged into a main downcast shaft 400 ft. deep, 4 ft. 3 in. by 8 ft. 5 in. in cross sectional area at the smallest point. This downcast leads into the first vein of coal. The new fan discharges down the same downcast and thence about ½ mile distant into another drop shaft 135 ft. deep, extending to a second vein. It is delivering at present 50,000 cu. ft. of air per minute at 3.6 in. water gauge, requiring 65 hp. for its operation, and it is expected later on to handle 75,000 cu. ft. of air per minute at 8.1 in. water gauge. It is guaranteed by the manufacturer, the American Blower Company, Detroit, Mich., to have ample capacity for this service.

Reports that the Jones & Laughlin Steel Company, Pittsburgh, has bought 1200 acres at Gary, Ind., on which it will erect blast furnaces, steel works and finishing mills, are absolutely untrue. It has not bought any ground at Gary or elsewhere outside of Pittsburgh, but intends to confine its manufacturing operations entirely to the Pittsburgh District. This is shown by the large investment it is making in new works at Aliquippa, Pa.

Reports that the Carnegie Steel Company will remove its Lower Union Mills at Twenty-ninth street and Upper Union Mills at Thirty-third street, Pittsburgh, to Girard, Ohio, where new finishing mills for the manufacture of merchant steel bars and small shapes will be erected, are untrue.

The McClintic-Marshall Construction Company, Pittsburgh, has placed an order with the Morgan Engineering Company, Alliance, Ohio, for a 10-ton electric traveling crane, with a 70-ft. span and a 15-ft. lift, to be installed in its Carnegie, Pa., plant.

At a meeting of the stockholders of the Bird Iron Company, Ironton, Ohio, Tuesday, November 23, it was decided to sell the furnace at auction December 4. Dissension among stockholders is assigned as the cause.

HARDWARE

PUBLISHER'S NOTICE.

THE IRON AGE had hardware as its first subject and, for a long time, as its sole topic. For 54 years this journal had been the leading American exponent of the hardware industry. But other and mighty interests have grown up to claim the attention of THE IRON AGE, and have so pressed upon its space that hardware has been hampered till now it demands a clear field to itself and opportunity for unhindered and unlimited journalistic expansion. Therefore, there will appear on December 4th, and each week thereafter

IRON AGE-HARDWARE

a combination of the most important weekly with the most important semi-monthly periodical in the trade, forming a paper which we believe every hardwareman will welcome and of which every hardwareman will be proud. All the hardware subscribers of THE IRON AGE will get it as will all the subscribers of HARDWARE; and when they have gone through it carefully we shall be glad to hear what they think of it.

DAVID WILLIAMS COMPANY.

The Retail Hardware Associations

THE existence of retail Hardware associations in so many of the States is a striking feature of the trade. This branch of business probably has a more developed organization than any other line of trade in the country. Following the example of the manufacturers and jobbers it is recognized as the proper thing for retail merchants to have their State, and in not a few cases, their local associations, in which they are brought together for the advancement of their common interests. The movement, too, is apparently extending, as most of the old associations are holding their own and new ones are gradually forming in States in which they have not heretofore existed. Such organizations in so many States, even though not much more than one-third of the trade are identified with them in actual membership, is an impressive example of the disposition of business men to get together, whether it be for their advantage in a business way or at the call of the spirit of fraternity. In such a movement there is evidently an opportunity for much useful work along a variety of lines. That much good has been accomplished, especially in giving the trade higher ideals, and educating them in the direction of the best methods, must be acknowledged by all who are familiar with the history of the work of the associations.

It would, however, be a mistake to suppose that anything like the full usefulness of the associations has as yet been attained. There must be a substantial growth in membership in many sections before this can be the case, for in many of the States the associations do not as yet represent anything like a majority of the Hardware merchants. In some of them the attendance at the annual meetings is disappointing. Uninteresting programmes and lax methods of conducting meetings make the gatherings less profitable than they might be. The exhibit feature, which has much to be said in its favor, is often an actual interference with convention work along practical lines, and for this loss there is not adequate compensation found in the revenues which are thus secured. Errors of judgment and inexperience sometimes result in sessions of little practical benefit, as for example when there is no definite and attractive programme, or when some advocate of a special interest, or some one who has his own Axe to grind wastes the time of the convention in an address long and perhaps eloquent and thus pleasing to listen to, but without definite practical bearing on the problems which press upon Hardware merchants in the conduct of their business. The attendance, too, at the conventions is often representative of far too small a part of the membership, a fact which, allowing for necessary absence, must be explained in some measure at least by a feeling perhaps only half recognized, that what is to be learned and enjoyed there does not justify the expenditure of time and money involved in attending. The absentees probably err in reaching such a conclusion, as those who go to the conventions prepared to learn from their fellow merchants, to participate in the discussions, and to contribute their part to the interest of the gatherings, usually find themselves amply repaid.

Of such a movement, with which thousands of Hardware merchants are identified, it is becoming that the trade take a calm and practical view. The associations are here to stay. They have, if wisely directed,

a large potentiality for good—if unwisely directed and poorly supported, they will drag along without much dignity or usefulness. Nothing is gained by the disposition sometimes manifested to compliment the movement unduly and give it credit for more than it deserves, instead of pointing out shortcomings with a view to improvement. The object of this reference to the association work is to indicate to the membership and all in official responsibility, as well as to the unaffiliated merchants who should join the ranks, the opportunity which opens before them, and the responsibilities which rest upon them. It is proper that such counsel be given by *The Iron Age,* which from the first has been the friend of the retail Hardware organization movement, and which has done more than any other influence to make it successful. We have many times extended our congratulations on the work accomplished. There is, however, opportunity for a larger success and greater usefulness. There should be better work along the old lines which have been approved in experience, but at the same time there should be work along new lines, that there may be an increase in the activity and practical helpfulness of the associations. How this is to be accomplished is the great problem, not only before those in positions of responsibility, but which should have consideration from every Hardware merchant. These words of suggestion reminding the trade of what may still be accomplished are not to be taken as criticism, but rather as the friendliest counsel, frankly given in the hope that the association movement may make good in still larger measure and that in every State the coming conventions may be the best in the history of the organizations.

Condition of Trade.

Manufacturers' reports are uniformly of cheerful tone, though there is a good deal of difference in the amount and character of the improvement in business which they are experiencing. The strength of the iron market, notwithstanding here and there a moderate recession from high prices recently reached, is felt all along the line, as well as the general confidence in the soundness of the commercial situation and the expectation of good trade next year. There is a good volume of current business to meet regular requirements, and the upward trend of the market is doubtless stimulating purchases, most of which are, however, to be regarded as a liberal covering of prospective wants for the near future, rather than speculative and in the expectation of further advances. With the market in the condition which now prevails manufacturers are subjected to many requests to enter orders at the old price after an advance has taken place, and under these circumstances the merchants are very willing to cover their needs for some time to come. In many instances manufacturers lose the immediate advantage of higher prices because of the unbusinesslike custom which prevails of giving intimations of advances before they take place or of keeping the door open to let their large customers in at prices which have been superseded by higher ones. This practice has in some lines become so much a matter of course that merchants are aggrieved if they are refused this unreasonable privilege, but there is perhaps less of this than formerly. It, of course, contributes directly to unevenness of price in the market at large, as the jobbers thus favored are tempted to pass the favor along and give the small merchants the benefit of cut prices. The difficulty in obtaining raw material is troubling some manufacturers, as the mills are sold so far ahead that they are unable in many cases to meet the needs of the factories by prompt shipments. This state of things is not always met by the placing of orders early and in advance of requirements, for there seems to be some ground for the complaint that later orders at higher prices are given the preference in shipment over earlier orders at prices from which the market has moved upward. With retail merchants business is generally satisfactory in volume, and at this busy season most of them find themselves well occupied in taking care of current trade. Seasonable goods, of course, have a prominent place. The activity in building is reflected in Tools, Builders' Hardware and Supplies and related lines. The final preparations are being made in many stores for the holiday trade, which with the prosperity of the people promises to be large and profitable. Prices continue to advance gradually, but manufacturers are generally conservative and endeavoring to avoid the mistake of putting up the prices to a level from which it may be necessary to retreat. The situation is thus on the whole eminently satisfactory and full of promise, so that with the depression practically a thing of the past, there is in national and individual well being and the outlook for continued prosperity, a substantial basis for gratitude and rejoicing in the observance of the THANKSGIVING festivities.

Chicago.

Business continues to be characterized by the features which have been referred to in recent reports. Trade is in very satisfactory volume and a good many rush orders are coming in from belated buyers. Advances in price are occurring frequently, and the market reflects the strength of the raw material and the improved conditions throughout the country. Western jobbing houses certainly have no reason to complain and manufacturers express themselves freely as anticipating a large business in 1910. The Hardware merchants of the Mississippi Valley are giving an unusual amount of attention this year to special lines of holiday goods. The most progressive Hardwaremen have always done the best they could in this line with the limited opportunities afforded them in the available stocks of the Hardware jobbers, and the idea has grown until the jobbers are now exerting themselves to provide goods suitable for the holiday trade. Special advertising schemes are also in favor. The department stores have built up an enormous holiday trade by going after it and advertising liberally to bring people into their stores, and successful Hardwaremen find that they can obtain the same results by making the same kind of an effort.

NOTES ON PRICES

Wire Nails.—The new demand for Wire Nails continues fair, some orders presumably being placed in anticipation of an advance in price. Shipments of orders previously placed are being made as specifications are received by the mills. One large mill is naming $1.90, base, as its general price at mill, and the market as a whole is firm. Quotations continue as follows: F.o.b. Pittsburgh, plus actual freight to point of delivery, 60 days, or 2 per cent. discount for cash in 10 days:

Carloads, to jobbers	$1.80
Carload lots to retail merchants	1.85
Less than carloads to jobbers	1.85
Less than carloads to retail merchants	1.95

New York.—A continuous demand, though moderate, represents the movement of Wire Nails in the local market. While the general quotation is on the basis of $2 per keg, for small lots at store, there is some unevenness in prices.

Chicago.—November has been a very good month in the Wire Nail trade, as dealers and jobbers have been buying liberally, some of the business being done in anticipation of an advance in prices. We quote as follows: $1.98, Chicago, in carloads to jobbers, and $2.03 in carloads to retailers, with an advance of 10 cents for less than carloads from mills.

Pittsburgh.—There is only a fair new demand for Wire Nails, but consumers continue to specify quite freely on contracts placed some time ago, when prices were lower, most of these contracts having been entered by the mills on the $1.70 basis. These contracts are being gradually closed up, and shipments by the mills on the $1.80 basis are getting larger as each day goes by. The Wire Nail market is decidedly firm, and one leading interest is quoting $1.90 in most cases, naming the $1.80 price only in exceptional cases and to its largest customers. The mills will not sell beyond 60 days at the $1.80 price, and one leading interest will only accept a limited amount of business at this price and only for shipment at its convenience. It is the general opinion that between now and January 1 a general advance of about 10 cents per keg in Wire Nails will be announced. We continue to quote Wire Nails at $1.80, base, in carload and larger lots to jobbers, f.o.b. Pittsburgh, plus freight to point of delivery, 60 days or 2 per cent., discount for cash in 10 days.

Cut Nails.—Concessions in the price of Cut Nails are becoming infrequent, owing to the scarcity and high price af material, and the market has taken on a firmer tone. Some new business is being placed, but this is exceeded by specifications on contract orders. Quotations are on the basis of $1.80 to $1.85, in carload and larger lots, f.o.b. Pittsburgh.

New York.—The movement of Cut Nails in the local market is comparatively light. There is not entire uniformity in quotations, though $2 per keg, base, is the general price asked for small lots at store.

Chicago.—The demand is running a little lighter for Cut Nails, but the market continues very firm, reflecting the strength in the raw material market. We quote in carloads to jobbers, Steel Cut Nails, $1.98 to $2.03; Iron Cut Nails, $2.08 to $2.13.

Pittsburgh.—A fair amount of new business is being placed, and new demand is light, while specifications against contracts are coming in quite freely. The high prices being charged for Nail Slabs and the continued scarcity of steel has imparted a very strong tone to the Cut Nail market, and we are advised prices are strong, and concessions have entirely disappeared. We continue to quote Cut Nails at $1.80 to $1.85, f.o.b. Pittsburgh, in carload and larger lots.

Barb Wire.—Demand for Barb Wire from the South is larger than from other sections of the country, as is not unusual at this season. The market is firm, and one leading interest is said to be asking $2 per ton over regular prices. Quotations are unchanged as f.o.b. Pittsburgh, as follows:

	Painted.	Gal
Jobbers, carload lots	$1.80	$2.10
Retailers, carload lots	1.85	2.15
Retailers, less than carload lots	1.95	2.25

Chicago.—The Barb Wire business has shown a tendency to quiet down in Northern territory the past week, this being usual at this time of year. In the South, however, jobbers continue to buy freely and report that stocks are moving into consumption very actively. We quote as follows: To jobbers, Chicago, carloads, Painted, $1.98; Galvanized, $2.38. To retailers, carloads, Painted, $2.03; Galvanized, $2.33; retailers, less than carloads, Painted, $2.13; Galvanized, $2.43. Staples, Bright, in carloads, to jobbers, $1.98; Galvanized, $2.28; carloads, to retailers, 5 cents extra, with an additional 10 cents for less than carloads.

Pittsburgh.—New orders being entered by the mills are light, as they always are at this season of the year, but specifications on contracts are coming in fairly well and shipments are about as heavy as they usually are at this late season. The mills absolutely refuse to enter any orders at present prices, except for shipment within 60 days from date of contract. One leading mill continues to quote $2 a ton advance over regular prices on nearly all its inquiries. We quote Galvanized Barb Wire at $2.10 and Painted at $1.80 in carload and larger lots f.o.b. Pittsburgh, subject to usual terms.

Fence Wire.—Merchants are represented as ordering moderately, while manufacturers of Wire Fencing are placing large orders in expectation of a heavy business. The market is firm and one manufacturer is holding for an advance of $2 per ton more than regular prices: To jobbers in carload lots on a basis of $1.60 for Plain and $1.90 for Galvanized, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days, the usual price to retailers being 5 cents additional:

Nos.	0 to 9	10	11	12&12½	13	14	15	16
Annealed	$1.60	1.65	1.70	1.75	1.85	1.95	2.05	2.15
Galvanized	1.90	1.95	2.00	2.05	2.15	2.25	2.65	2.75

Chicago.—Business continues very heavy in this branch of Wire products, as the manufacturers of Wire Fencing expect a very heavy demand for spring trade. We quote as follows: Carloads, to jobbers, $1.78, base, f.o.b. Chicago.

Pittsburgh.—Makers of Wire Fencing are placing heavy orders for Plain Wire, but not much new business has been received from jobbers, who have fairly large stocks from which they are able to fill orders promptly. Prices are very firm, and one leading maker continues to ask $2 a ton over regular prices, and will accept orders only for shipment at its own convenience. We continue to quote Plain Wire at $1.60 and Galvanized at $1.90, f.o.b. Pittsburgh, subject to usual terms.

Tacks.—This is a line which the trade is watching in view of the possibility of the announcement of higher prices. There is a good volume of business, so that the factories are well occupied on orders, but some difficulty is experienced in obtaining raw material. Prices for Tack Plate have also within the past few months been substantially advanced so that there is some ground for increase in the price of the finished goods.

Chain.—The Chain manufacturers on November 16 advanced prices on Chains to conform more closely to the increased cost of material and labor. On Coil Chain this advance varies from 15 to 35 cents per 100 lb., the higher figure applying to the ⅜ in. size, which had long been out of harmony with the remainder of the list. On, for example, ½, ⅝, 11-16, ¾ and 13-16 in. sizes the increases are about 15 cents per 100 lb., while on 1, 1⅛ and 1¼ in. Chains there is no change. The table of extras remain as heretofore.

Eastern Standard Bright Chains were advanced 5 per cent. and on Western Standard Long Trace Chains there was a general advance of 1 cent per pair on the same date, except on 6½-6-2, 6½-8-2 and 6½-10-2, on which the advances were 2 cents per pair.

Copper Goods.—Bare Copper Wire in carloads, mill shipments, was advanced November 18 ¼ cent per pound, following closely a like advance of ¼ cent per pound November 16, making present price 15 cents per pound, base. On November 17 Sheet Copper was advanced 1 cent per pound to 18 cents, base. Seamless Copper Tubes are unchanged as yet at 22 cents, base. November 22 Sheet Brass, Brass Wire and Brass Rods were each moved up ¾ cent per pound, to 15¼ cents, base. Brazed Brass Tubes are unchanged at 20⅝ cents, base, as are Seamless Brass Tubes at 18 cents, base, per pound. In these lines the market is strong and manufacturers are obtaining a much larger volume of business than has been their fortune for a long period.

Mechanical Rubber Goods.—There has been a general advance along the line of Mechanical Rubber Goods, ranging from 8 to 15 per cent. Cotton Duck, which is an important material in the production of Canvas Belting, is about 30 per cent. over the price ruling at the beginning of the year just closing, yearly contracts for

which are usually placed this month. Belting shows an advance of from 10 to 12 per cent. Other goods higher in these lines are Packing, Hose, Emery Wheels, Sheet Pure Gum, Dredging Sleeves, Suction Valves, Mats and Matting, rubber covered Rolls, Tubing and various articles in molded goods.

Agricultural Wrenches.—Agricultural Wrenches were advanced 10 per cent. on November 15, the market for which is now represented by quotations from 75 to 75 and 10 per cent. discount, lower prices being obtainable on full case lots. Jobbers having stocks based on previous low prices will doubtless for a while shade these quotations.

Hemp, Flax and Cotton Twines.—The following quotations indicate prices which are made on Twines in fairly large quantities, to retail merchants by a jobbing house in this line:

Dark India Hemp Twine.

No.	4½	5	6	7	8	9
Ply	2	3	3	3	3	4
Pound, cents	8½	9½	8½	8	7½	7½

Light, 1 cent per pound additional.

Fine Finished Flax Twine.

No.	18	24	36	48-60
Pound, cents	11	10½	10	9½

Light, 1 cent per pound additional.

B. C. Flax Twine.

No.	18	24	36-48-60
Pound, cents	15¼	14¾	13¾

Cotton Wrapping Twines in balls: 4-ply red and white variegated and blue and white variegated.....Per lb., 25 cents
White Cotton Wrapping Twines, 3 and 4 ply....Per lb., 24 cents

Wire Cloth.—Wire Cloth prices to retail trade for the coming season, established under date November 16, in addition to that of 1.30 cent per square foot on standard 12-mesh, Black Painted Cloth, noted in our last issue, are as follows:

	Per sq. ft.
14-mesh Black Painted Cloth	1.90
16-mesh Black Painted Cloth	2.25
18-mesh Black Painted Cloth	3.05
12-mesh Galvanized Wire Cloth	1.90
14-mesh Galvanized Wire Cloth	2.20
16-mesh Galvanized Wire Cloth	2.55
18-mesh Galvanized Wire Cloth	3.65
12-mesh Bronze Wire Cloth	4.50
14-mesh Bronze Wire Cloth	5.00
16-mesh Bronze Wire Cloth	5.25
18-mesh Bronze Wire Cloth	5.75

The prices on Black Painted and Galvanized Wire Cloth are similar to those of November 7, 1908, and slightly lower than subsequent prices made in 1909 as the season advanced. On Bronze Wire Cloth the established figures are materially lower, despite the advances in raw stock and Wire, the reasons for which are attributed to increased competition. Some manufacturers have discontinued the practice of carrying in stock the Nos. 16 and 18 mesh Bronze Cloth, but can supply it to order, the finer meshes being used mostly in hot climates to exclude the smaller insects.

Copper Rivets and Burrs.—Copper Rivets and Burrs by some makers have been advanced 5 per cent. November 16, a discount of 50 to 10 and 5 per cent. now fairly representing the market, with some concessions to jobbers in large quantities.

National Association of Brass Manufacturers.—The National Association of Brass Manufacturers at their annual meeting, which will be held at the Hotel Astor, New York, on December 7 and 8, will receive the final list report of the List Committee which has had in charge the publication of the new official catalogue. Officers for the ensuing year will also be elected at this time.

Rivets.—Small cold made package Rivets, including Black and Tinned Tinners' Rivets and others of a miscellaneous character, were advanced by the manufacturers on November 17, the market for which is now represented by a discount of 75 and 5 per cent., and on Iron Belt Rivets and Burrs 75 and 20 per cent. discount from the list on other Rivets of this general character. There is a much firmer market and makers are finding that Rods and Wire have not only advanced, but are growing scarcer and harder to get.

Washboards.—Prices for Washboards are still extremely low and there has been much demoralization in the business. The present market is an improvement over conditions in the past. As prices sagged earlier in the year, jobbers and dealers bought stock to an extent that forbade large sales after the price reached the lowest point. There is a tendency toward better business now and Washboard factories are in receipt of larger orders than for some time. The lumber market is looked to to govern prices for the next few months rather than the price of metal, as some of the larger manufacturers are believed to be well stocked with metal on hand or contracted for.

Blacksmiths' Bellows.—Blacksmiths' Bellows are still being sold at figures made while prices for lumber, leather and metals were much below current rates. In view of higher costs both in material and labor, however, some increase in the price is being considered for next year.

Wire Rope.—The makers of Plain and Galvanized Wire Rope on November 20 advanced the price about 10 per cent. on Plain Rope and 7½ per cent. on Galvanized Wire Rope. Bright Wire Rope is now being quoted at 50 and 2½ per cent. discount and Galvanized Wire Rope at 42½ and 2½ per cent. discount, subject to the same deliveries and terms as before. An additional 5 per cent. is given for quantities of $1000 to $3000 purchased in any consecutive six months and 7½ per cent. on purchases of $3000 and over in the same time. The business at present does not show the volume of output that obtains in other lines, because of some holding off of users of Wire Rope in various industries, but makers are anticipating a large business next year and making preparations for it.

Spirits Turpentine.—The results of fluctuations during the week is an advance of ½ cent per gallon. Manufacturing consumers are keeping their purchases down to small lots, which policy they may pursue during the balance of the year. The demand from other classes of trade is light. New York quotations are as follows: Oil Barrels, 58 to 58½; Machine Barrels, 58½ to 59 cents. Attention has been called to the fact that the advance of 25 cents per gallon in the price of Spirits Turpentine during the last 12 months has recently brought out complaints of adulteration. Benzine is said to be used in lots of about 5 gal. to a barrel by some dealers, so that they may be in a position to make lower prices to merchants who think that the advances are unwarranted by general conditions. Of course the actual quantity of pure Turpentine the merchant gets costs him more than if he had bought the pure article, besides furnishing his customers with an inferior article.

Furniture Casters.—The demand for Casters continues in an even, regular way, and with prices, so far, uniformly low. Some adjustment to new conditions, it is foreseen, will be necessary in the near future, but as there is pronounced competition marked changes are not now anticipated. Reference, however, is made to the withdrawal of the unusually low prices and the opinion is expressed that as rapidly as contracts expire, prices based on present casts must necessarily become operative. Some features of the business are an increased output occasioned by manufacturing development; a call for higher grades for certain uses; the use of specially designed Casters proportioned for special cases and a growing use of ball bearings.

Spring Cotters and Keys.—Spring Cotters and Keys appear to be in larger demand, with orders for increased quantities over the corresponding period last year. Some manufacturers note a tendency toward normal conditions by January next, and a promising outlook for the future. In some instances orders are in excess of machine capacities.

Rope.—The demand for Rope continues in fairly good volume. The Manila fiber market remains strong with advancing tendencies, and some manufacturers are quoting Pure Manila Rope at 8½ cents, base, per pound. A more general price, however, appears to be on an 8-cent basis. The market is represented by the following quotations: Pure Manila of the highest grade, 8 to 8¼ cents

per pound; lower grades of Pure Manila, ¼ to ¾ cent less. Pure Sisal of the highest grade, 7¼ to 7¾ cents per pound, base; Commercial grade, 6¼ to 6½ cents per pound. Rove Jute Rope, ¼ in. and up, No. 1, is quoted at 5 to 5½ cents per pound.

Window Glass.—The market continues in about the same condition as for some time. While the committee which has been working on the Imperial Window Glass Company project has not abandoned all hopes of eventually consummating its formation, it may require a longer open market period to bring the plants that have been holding out to a realization of the advantages that would accrue from concerted action on prices and restriction of output. The prospect of a favorable outcome of the Imperial Company project has, however, given manufacturers an opportunity of holding for higher prices. It is understood that the American Window Glass Company has announced higher prices as follows: Small Single Strength, 90 and 35 per cent. discount; Large Single Strength, 90 and 30 per cent. discount; Double Strength, 90 and 35 per cent. discount. Jobbers are represented as purchasing only for immediate requirements, which would appear a wise course to pursue under present conditions. Jobbers in Western territory have recently quoted the following discounts from the list of October 1, 1903: Single Strength, 90 and 25 and 5 per cent.; Double Strength, 90 and 30 per cent. In the Central West prices are quoted by some jobbers as follows: Single Strength, 90 and 30 per cent. discount; Double Strength, 90 and 35 per cent. discount. The Eastern Window Glass Jobbers' Association recommends the following discounts from jobbers' list of October 1, 1903:

New England territory: Single, 90 and 25%; double, 90 and 30%.
New York State: Single, 90 and 25%; double, 90 and 30%.
New York State, factory shipments: Single, 90 and 30%; double, 90 and 35%.
Southern States: Single, 90 and 20 to 90 and 30%; double, 90 and 25 to 90 and 40%.

White Lead in Oil.—The demand for White Lead in Oil is moderate, in accordance with the season. The market is steady at the following quotations: In 100, 250 and 500 lb. kegs, 6¾ cents per pound; in 25 and 50 lb. kegs, 7 cents per pound, with the usual advances on smaller packages. Consumers of Dry White Lead are showing some disposition to place contract orders for shipment during the coming year, owing to the firm appearance of the market.

Linseed Oil.—The market continues strong at the 2-cent per gallon advance recorded last week. Buying is confined to comparatively small lots, as purchasers are only covering nearby requirements, and crushers have not Oil enough to fill large orders. Pressure on crushers for Oil has not grown less owing to the constant call for small lots. Contracts have about become exhausted, so that those who have been drawing on them for supplies will now have to buy in the open market. Quotations in 5-bbl. lots or more are as follows:

	Cents.
Out of town Raw	64
City Raw	65
Less than 5-bbl. lots, advance per gallon	1
Boiled Oil, advance per gallon	1

Price-Lists, Circulars, Etc.

Manufacturers in Hardware and related lines are requested to send us copies of new catalogues, price-lists, &c., for notice in this column and for filing in our Catalogue Department.

SPECIALTY MFG. COMPANY, St. Anthony Park, St. Paul, Minn.: Circulars illustrating Detachable Hose Reels, Hose Holders, Mechanics' Aprons and Detachable Grass Catchers.

MAINE MFG. COMPANY, Nashua, N. H.: Catalogue 1910, illustrating its lines of White Mountain Grand, White Mountain Hardwood, White Mountain Pine and Stone White Refrigerators, Ice Chests and Fish Boxes. Additions have been made to the White Mountain Hardwood series, supplied with the Maine Duplex Ice Grates. A two-page view is given of the company's factory; also an illustration of its quarries from which the stone is taken which is used in the Stone White Refrigerators.

L. S. STARRETT COMPANY, Athol, Mass.: Pamphlet showing a number of new Tools recently added to the company's line, including Protractors, Combination Sets, Planer and Shaper Gauge, Taper Gauges, Tool Makers' Buttons with Screens and Washers for Jig work, Micrometers, Electricians' Pocket Screwdriver, Calipers and Dividers, &c.

TIME SAVER COMPANY, 178 Devonshire street, Boston, Mass.: Booklets devoted to Instantaneous Index, Transparent Check File, Follow-up System, Deposit Ticket, Sales Ticket and Charge Slip File and Binder, Note Case, Deposit Ticket Filing Cabinet, Adjustable Sorter, Adjustable Register, Envelope Opener, &c.

RICE & CO., Lowell, Mass.: Catalogue devoted to double Crimp Iron, Steel, Brass, Copper, Galvanized and Tinned Wire Cloth, Ash Sifters, Coal and Sand Screens, Foundry Riddles, Corn Poppers, Office Railings, Window Guards, Wire Grille Work, Wire Lathing, &c.

Fall Opening and Cooking Exhibition.

THE Aid Hardware Company, West Plains, Mo., held its fall opening of China, Cut Glass, Art Goods, &c., during the week, November 8 to 13, and in this connection the following invitation was sent out to those whom it was desired to interest:

In connection with the Cooking Exhibition next week, we will have our regular Fall Opening. Our showing this year will by far exceed anything we have ever before attempted, both in quantity and quality.

We will have BRILLIANT CUT GLASS and FINE HAND-PAINTED CHINA good enough for the Queen, and the prettiest line of CHINA, so nice and cheap that everybody can afford some of it.

Don't forget that we will still be Headquarters for Holiday Goods, which we will open up in full by December 1, consisting of Dolls, Doll Buggies, Teddy Bears, Billy Possums, Mechanical Toys, Drums, Iron Toys, Hill-Climbing Toys, Albums, Toilet Boxes, and a thousand and one articles that cost but little but make the little folks happy.

It will be quite a treat to see our nice display, drink a cup of good coffee, eat a hot biscuit, whether you buy or not. COME.

A SOUVENIR FOR EACH LADY VISITOR.

The cooking exhibition was a prominent feature of the week, and with a view of effecting as many sales as possible the company presented each purchaser of a Range with an attractive set of Range ware free.

Tuesday, the 9th, was "Walking Cake Day," and in this connection the following interesting and startling announcement was made:

The walking cake will be baked in a —— Range air tight oven in the morning. In the afternoon, about 3.30, 25 ladies will stand on two 12-ft. planks placed on the cake and crush it flat. In five minutes it will rise to its natural hight, when it will be cut and served to all present.

GEORGE WILLIAM HOFFMAN, manufacturer of the U. S. Metal Polish, Barkeeper's Friend and other specialties, Indianapolis, Ind., died at his home on the 22d ult., after a short illness. The business will be continued as heretofore by his widow under the same style.

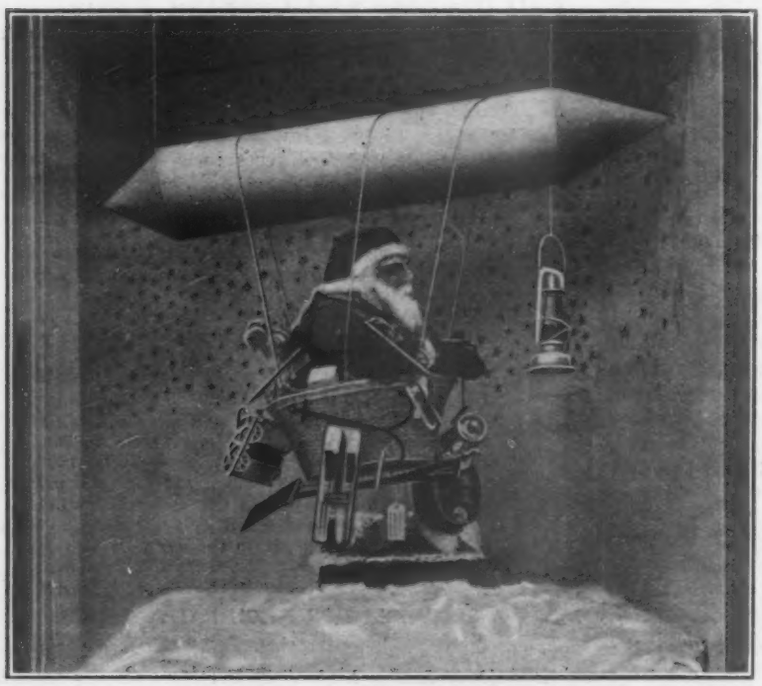
THE DAVIDSON HARDWARE COMPANY, Gainesville, Ga., will open up in the exclusive wholesale Shelf and Heavy Hardware business on December 1. S. W. Davidson is president and general manager; T. C. Miller, vice-president, and W. H. Towery, secretary-treasurer.

W. B. LAWRENCE has opened another store at 4 Dey street, New York, in addition to one located at 66 Broadway, for the sale of Lawrence Guaranteed Cutlery; also Strops, Soaps, Brushes and other toilet articles, Manicure Sets, and some specialties that harmonize with this line.

Going After Christmas Trade.

Santa Claus Air Ship Window Display.

DURING the holiday season last year one of the windows of James Hamil, Watervliet, N. Y., was occupied with the exhibit herewith reproduced. It represented Santa Claus in an airship loaded with presents, about to alight on a chimney top. The balloon was made of 12-in. heater pipe with funnel ends. Santa Claus was seated in a medium size Willow Clothes Basket suspended by cotton cord. In and about the basket were grouped a Carpet Sweeper, Carving Set, Skate, Snow Shovel, Safety Razor, Pen Knife, Coffee Percolator and Roaster. A suspended Lantern lighted the way.



A Holiday Window Display Showing Saint Nick with Christmas Presents in an Airship and About to Anchor on a Chimney Top.

The bottom of the window was built up to represent the roof of a house with the top of a chimney showing. The roof was covered with cotton to represent snow, and a 3-in. gutter hung from the edge of the roof.

The background was made of blue cambric with different sizes of stars cut out; also a moon. Yellow cheesecloth was pasted on the back of the cambric with two Welsbach lights behind to help out the idea of a cold winter's night.

In the other window Skates were shown on bright Heater Pipe Tin for ice, with Asbestos Cement around the edge to represent snow. In the background were hills of cotton, on which were trees hung with samples of Skates.

This unusual display resulted in many sales. The windows were designed and arranged by K. A. Fisher.

Getting Ready for Holiday Trade.

BY CLARFIELD.

TIME was when ye local Hardware merchant took down his shutters on a crisp winter morning and then retired into the dim retreat of his musty shop, where but little light could penetrate through the cobwebbed windows, piled high with miscellaneous junk, and forthwith proceeded to watch the holiday shoppers troop past his door to the neighboring jewelry and fancy goods stores. It rarely occurred to a dignified merchant of those good old days that among his Nails and Hammers and Kettles and Pans there were many articles that could be featured and sold at holiday time, or, rather, they **should sell** at holiday time, but nevertheless **would not sell** unless properly featured.

Modern Evolution.

Thanks to the energy of the trade papers in the field and the enthusiasm of the younger generation, who have succeeded the distinguished type of ye olden time, such occurrence is now but a memory of the past, and the progressive Hardware store receives its just share of the fleeting dollars pried loose by the irresistible holiday spirit.

An Early Start.

The modern Hardware merchant begins early to prepare for this gift buying season. As the gift selling idea was gradually dragged out from its retreat behind conservatism, the more progressive merchants began to select from their regular stocks such articles as would make practical and acceptable gifts, and displayed them in their windows and show cases a few days before Christmas.

The effort was rewarded when Jim, the carpenter, or Pat, the laborer, appeared in the store on Christmas eve and disappeared later with "wan o' thim" Agate Ware Coffee Pots or Nickel Plated Kettles "for the old woman." Then the young lawyer of the village appeared and ordered a handsome Chafing Dish to be delivered to a friend on Christmas morning, while a clerk from a nearby store went away with a Carpet Sweeper for his mother.

So the illustration might be continued indefinitely, and so the idea of Christmas selling in the Hardware store has expanded from a small beginning.

The Hardware merchant who seeks to sell special lines at this season of the year begins his preparation months in advance. The merchant who desires merely to feature those regular lines which can be applied to the gift buying season, begins to display them and advertise them immediately after Thanksgiving, whereas 10 years ago he postponed this effort until Christmas week.

Character and Scope.

The character and scope of such a holiday business campaign should be determined well in advance of the actual effort. If special goods and novelties are to be handled, great care should be exercised to select those things which the buyer feels absolutely certain will appeal to the trade of his store, and equal caution should be shown in the quantities bought.

It is far better to underbuy than to overbuy such merchandise, for novelties and fancy goods do not mix well with staples, will not sell out of season and rarely can be sold at a profit when carried over from one season to the next. In fact, it is often better practically to give away broken lots of such merchandise than to carry them over, which keeps the investment tied up.

The Question of Policy.

Whether or not the Hardware merchant shall depart from his regular lines at this season of the year must be governed largely by his own knowledge of the local conditions. If the Toy and novelty trade is well covered in his locality, it will unquestionably be more to his ad-

vantage to stick to his regular lines and push them hard to get his share of the Christmas money.

On the other hand, it frequently happens that the field will be comparatively open for him to handle Sleds, Air Guns and other of the larger and more practical Toys and novelties, and by pushing them he will not only obtain additional profit from their sale, but he will bring additional trade to his store, which otherwise might go to other dealers or even to other towns.

In any case, it pays to consider this matter **early**, advertise and display the special goods **early**, and concentrate every possible effort in this direction, because this is the time when staples do not move readily and every additional sale is a distinct advantage gained.

Holiday Goods Booklets for Hardware Merchants.

HIBBARD, SPENCER, BARTLETT & CO., Chicago, Ill., have designed a unique booklet under the title of "Christmas Suggestions," which is intended for distribution by Hardware merchants advertising the O. V. B. (Our Very Best) brand of holiday goods. The booklet, which is printed in an attractive form, is issued in the name of the merchant, no other name appearing in it excepting the trademark of the goods. These booklets are made up to order for each merchant who adopts the idea and he has quite a range of sample pages to choose from in making up the assortment of goods which he wishes to handle.

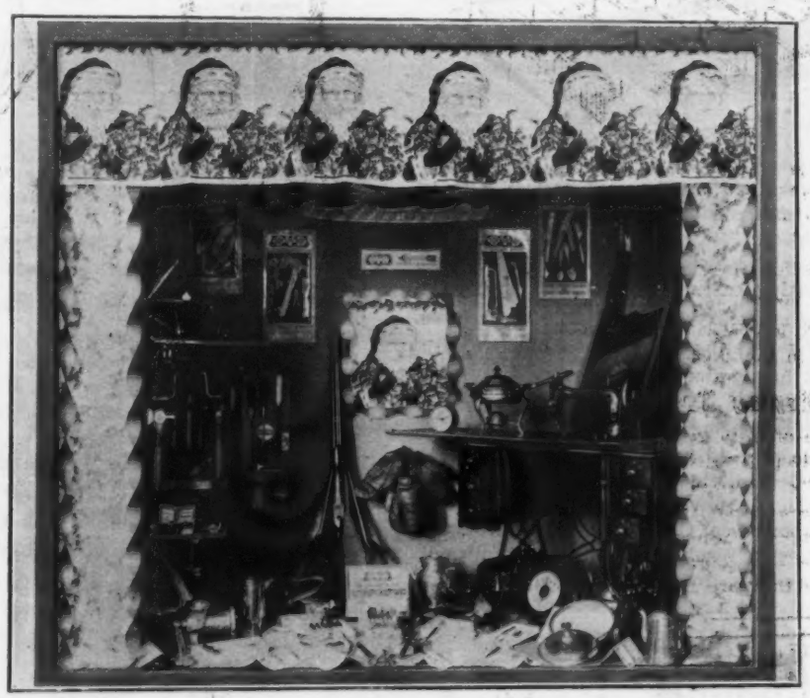
The printing is originally done in four-page sheets. Seventeen of these sheets, numbered 100 to 116, are sent to the merchant, who selects those covering the goods which he desires to handle. The section sheets thus selected are returned to Hibbard, Spencer, Bartlett & Co., and a booklet is made up from them, the merchant's name and address being printed on the front cover, and as many copies of the booklet are furnished as the merchant desires for distribution. Thus the Hardwareman is in the position of having a very appropriate holiday booklet to distribute to his customers and it goes from his store as his own publication.

A very complete line of holiday goods is shown in the sample pages and this novel plan of advertising has proved popular, especially since it is done without expense to the merchant, who gets the credit for originality and ability in issuing attractive advertising matter.

The goods covered by the sample pages include Silver Ware, Cutlery, Razors and Strops, Watches, Sleds, Wagons and Coasters, Ice Skates, Carvers, Chafing Dishes, Velocipedes, Roasters, Carpet Sweepers, Meat Choppers, Washing Machines, Tool Chests and Cabinets, Fireless Cookers, Hammers, Hatchets, Wringers, Baseball Outfits, Shot Guns, &c.

Each four-page section sheet gives information at the bottom of the sheet as to the wholesale price of the goods shown above, the suggested price at which they should be retailed, and the profit secured by the transaction.

Hibbard, Spencer, Bartlett & Co. are also giving a good deal of attention to the matter of window advertising for merchants. We reproduce herewith an exhibit prepared by one of their men, the window being trimmed with paper decorations which we are advised did not cost 25 cents. They are ready to furnish this material with suggestions as to manner in which an effective display can be made free to their customers who care to go into their holiday advertising scheme. They are convinced that the most practical line of window advertising to follow is in the way of simple designs which any merchant with the help of a few suggestions can work out.



Specimen of Holiday Window Exhibits Prepared by Hibbard, Spencer, Bartlett & Co. for Their Customers.

THE fall issue of "The Hardware and Paint Hustler," the house organ published by the firm of G. V. & F. W. Cameron, Albany, N. Y., was described as a Hudson-Fulton number, and a good deal of attention was given to this elaborate celebration with programme of the events in New York City and along the Hudson River and at Albany, and a short sketch of Henry Hudson. On the first page of the bulletin appears the following reference to the **Good Service** which the firm is prepared to render to its patrons:

Our conception of good service consists in the selling of reliable merchandise, at a profit as low as is possibly consistent with the grade;

Being well informed as to the character, quality and possible uses of the various articles of our stock;

According to our patrons the utmost courtesy;

Endeavoring to fill their wants to the best of our ability;

And getting their orders delivered in the most expeditious manner.

It is our desire to constantly improve our service and we trust that parties who may be in any way dissatisfied with it, will without any hesitation, report their complaints to our office.

Home Made Store Fixtures

Showcase Display Trays—Reels for Wire and Rope—Cabinets for Screws, Fishing Tackle, Tacks and Sandpaper Racks for Washboards and Pot Lids Shelves Around Pillars.

THE accompanying illustrations represent a number of store fixtures, suggested by a Hardware merchant, which may be made by clerks at odd times, and furnish accommodations for various lines of goods which thus can be kept in better order and be more convenient to get at than if no particular place is provided

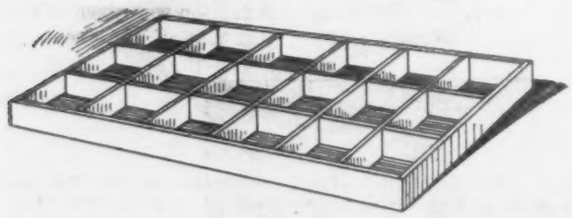


Fig. 1.—Display Trays Used on Showcase Shelves Help to Keep in View and Accessible Small Articles Otherwise Often Lost Sight of.

for them. Old packing cases doubtless will supply at least a part of the necessary lumber. All the fixtures will be improved by painting them to harmonize with the other woodwork in the store.

Display Trays.

Light trays made of ¼-in. wood, 10 in. wide by 18¾ in. long by 1½ in. deep, divided into compartments 3 x 3 in., as shown in Fig. 1, prove desirable accessories for the upper shelf of showcases. In them may be displayed Escutcheon Pins, Copper Washers, Rubber Bathtub and Basin Stoppers, Cane Tips, Corrugated Fasteners or any of the small articles that are usually out of sight, and

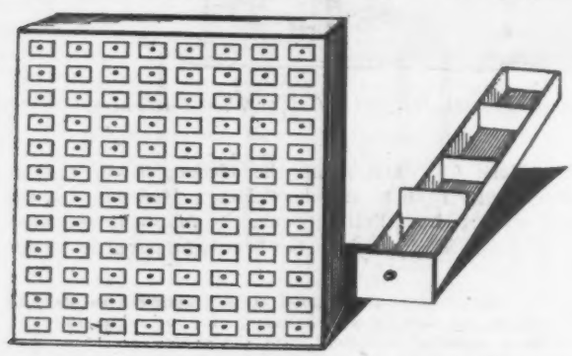


Fig. 3.—Screw Cabinet (With Detail of Drawer) Containing 96 Drawers with Adjustable Partitions.

as a consequence out of mind. The trays not only display the articles to advantage, but, owing to their lightness, are easily removed from the showcase for closer inspection and selection.

Wire Reels.

For the accommodation of small sizes of Copper and other Wires, String Solder, &c., in convenient and salable form, reels, constructed as shown in Fig. 2, may be attached to the end of a counter, the offset under stairs or in some out of the way nook not otherwise used. A bar of iron 1 x ¼ in. is drilled with holes for ¼-in. bolts. The ends of the reels are made of ¼-in. stuff, 4½ in. in diameter, with axles ⅞ or 1 in. in diameter and 5½ in. long, with a hole bored through the axles for ¼-

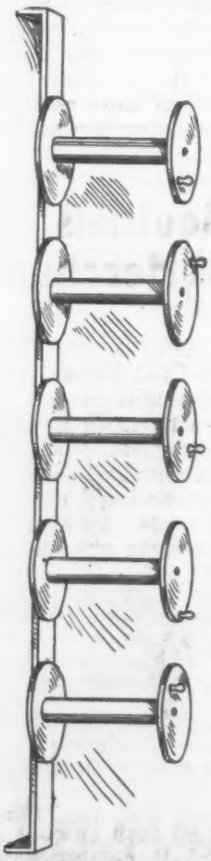


Fig. 2.—Wire Reels for the Accommodation of Small Sizes of Copper and Other Wires, String Solder, &c., in Convenient Salable Form.

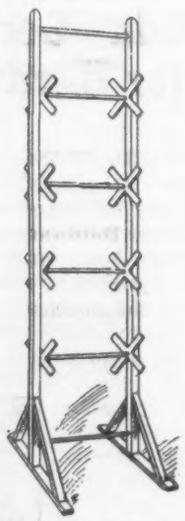


Fig. 6.—Rope Reels With Gas Pipe Cross Pieces for Axles, the Framework Being Held Together at Top and Bottom by ½ in. Bolts.

in. bolts. A small knob screwed near the rim of each reel serves as a crank. As many of the reels may be made as necessary to accommodate the sizes of Wire, &c., carried in stock. Countersunk holes are drilled in

Fig. 4.—Rack 4 Ft. High for Pot Lids 16 to 6½ In. in Diameter to Hold the Various Sizes Carried in Stock.

the ends of the bar to fasten it securely in position with screws at top and bottom.

Screw Cabinet.

For filling in the ends of shelving or for use in some other place a Screw cabinet can be made, as shown in Fig. 3, 18 in. deep, 3 ft. 9 in. high and 37 in. wide. This will allow for 12 drawers counting from the bottom and

eight drawers in width, or 96 drawers in all. The drawers are 15¾ in. long, the fronts 4 in. wide, 3 in. high, containing four bins or compartments. The divisions are made by using galvanized iron partitions inserted in slits sawed in sides of drawers before they are put together, making the divisions movable, so that partitions may be taken out and the compartments made larger if necessary. With four compartments a drawer

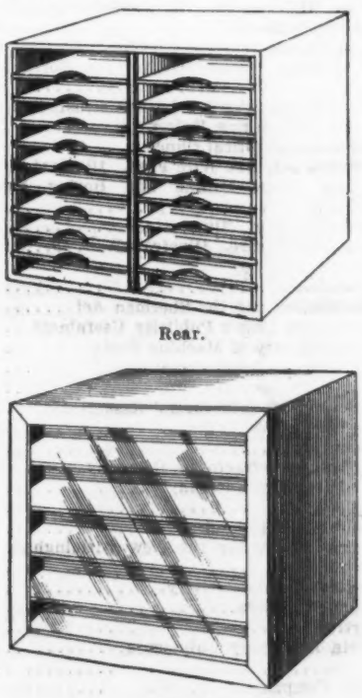


Fig. 5.—Front and Rear Views of Combination Tack and Sand Paper Cabinet, to Display Small Tacks and Nails in the Front and Hold Sand and Emery Paper at the Back.

marked ¾ No. 8 would hold Steel Flat Head, Brass, Nickel Plated and Japanned Screws.

Rack for Pot Lids.

When Pot Lids are kept on shelves, in bins or drawers, sizes become mixed, causing a loss of time in finding what is needed. To overcome this difficulty and to keep these goods in salable condition a rack, as illustrated in Fig. 4, can be built and located in the most convenient place. A desirable size is 17 x 16 in. at the bottom, 4 ft. high and large enough at the top to take Lids 6½ in. in diameter, or smaller if desired.

Combination Tack and Sandpaper Cabinet.

In Fig. 5 are given front and rear views of a combination Tack and Sandpaper cabinet. The front of the cabinet has a hinged glass door, back of which are adjustable shelves made of galvanized iron, on which may be displayed Clout Nails, Double Pointed and small Tacks in papers from 1 to 4 oz. The shelves are only 3 in. deep and are placed between the back of the cabinet and the glass door. The shelves for the Sandpaper, or rear part of the cabinet, are cut out in the center to permit grasping the sheets readily. The shelves, both front and rear, are slid into slits sawed in the sides before the cabinet is put together. This permits the shelves to be removed if necessary to enlarge the spaces. The base of the cabinet is 17 in. deep and 22½ in. wide, and is designed to stand on the counter, with the front toward the aisle.

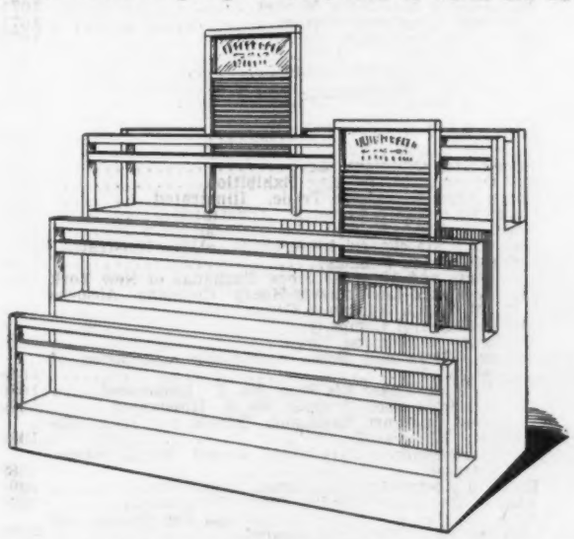


Fig. 7.—Washboard Rack Which May Be Made Large Enough to Hold Some Stock in Addition to Samples.

Rope Reels.

Uprights 3½ x 1¾ in., shown in Fig. 6, will hold five to seven reels, according to hight, affording a convenient

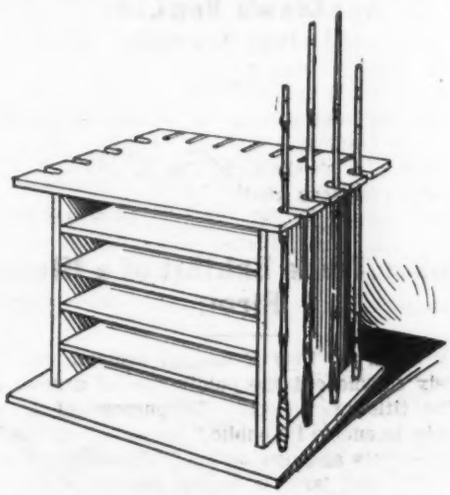


Fig. 8.—Fishing Tackle Cabinet with Shelves on One Side for Stock of Fish Lines; Jointed Rods Are Kept Around Three Sides in Openings Cut Out in Top Board.

method for handling and displaying the smaller sizes of Cotton, Sisal and Manila Rope. The axles of the reels are of ¾-in. gas pipe, with the reels 24 in. wide. The crosses on each end of the axles can be made to fit inside each end of a coil of Rope, so as to make the coils revolve evenly. Bolts ½ in. in diameter at top and bottom hold the framework of the reel supports together.

Washboard Rack.

The Washboard rack, illustrated in Fig. 7, may be made to serve a double purpose—hiding an unsightly corner or stairway as well as displaying Washboards. The

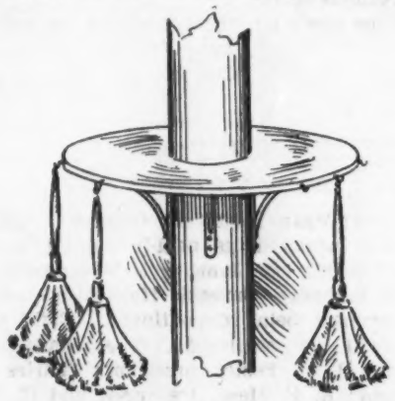


Fig. 9.—Pillar Shelves for Displaying Feather Dusters and Holding Articles Seldom Called for or Out of Season.

size of the rack will naturally depend upon the variety of Boards sold as well as the available space in which to place it. If space permits each division may be made deep enough to hold some stock in addition to sample Boards.

Fishing Tackle Cabinet.

Fig. 8 gives a rear view of a Fishing Tackle cabinet with shelves for stock of Fish Lines and other Tackle. The cabinet is 14 in. deep and 3 ft. 6 in. high, with top

and bottom extending beyond the sides about 3 in. The top is made of 1-in. boards sawed to allow jointed rods to be placed upright around the three sides. Holes are bored in the board forming the bottom to correspond with the openings in the top board, in which the butts of the rods are set. The rods are kept from falling out of the top openings by gate hooks and eyes. The cabinet is designed for use near a showcase containing Reels, &c. In this case display trays, like those shown in Fig. 1, may be used to hold Lead Sinkers, Pole Fittings, Swivels, &c. In this connection it is suggested that price-lists of goods kept in showcases may be pasted to the under side of the glass by touching the corners lightly for easy removal. This makes the lists visible from outside the case and keeps them clean.

Crow's Nests.

Iron or wooden pillars that support floors may be utilized by placing circular shelves around them at different hights, held in place by brackets. The upper shelves can be used for out of season goods or such articles as are seldom called for. Feather Dusters can be well displayed, as shown in Fig. 9, also Brushes and other goods of various kinds.

November Trade Exhibit of a Michigan Firm.

THE William De Pree Company, Zeeland, Mich., has lately commenced the publication of a store paper under the title of "Specs," the purpose of which is stated to be to enable its public "to read about the latest and lowest prices and new things in Hardware and Furniture." The first issue is largely devoted to the firm's "November Trade Exhibit," which occupied the week from Monday, November 1 to Saturday, November 6.

This exhibit was referred to as something different from the usual sale. A comprehensive display of Stoves, Sewing Machines, &c., was made, the manufacturers whose goods were featured sending men to demonstrate their lines. Light refreshments were served every day from 11 to 2, and numerous special sales and offers were on the programme all the week.

Every buyer of a Base Burner or Range was permitted to choose any one of a number of gifts, including a good parlor table, handsome picture with large frame of burnished gold, a set of the best silver plated Knives and Forks, or a well finished and substantial rocker. In connection with Sewing Machines purchasers were given a beautiful Axminster rug.

Among the goods on which specially low prices were named were Roasting Pans, Butcher Knives, Bicycle Foot Pumps, Razors, Wash Boilers, Lanterns, China Cupboards, Mirrors, Arm Chairs, Kitchen Chairs, Rugs, Carpets, Wall Paper, Lace Curtains, Linoleum, Matting, Ironing Tables, Shears, Fry Pans, &c.

THE FOSTER-MEAD HARDWARE COMPANY, Huntington, W. Va., has increased its paid-in capital stock from $50,000 to $100,000. On January 1 the company will engage in the exclusive wholesale Hardware business, the retail department being discontinued. Eight traveling salesmen will be employed. The officers of the company are R. W. Foster, president; Charles Russell, vice-president; R. F. Mead, treasurer, and C. M. Love, secretary.

BUTLER BROS., New York, Chicago, St. Louis and Minneapolis, in their December catalogue, lately issued, call special attention to merchandise of a holiday character, including Fancy Goods, Toys, Games, Tree Ornaments, articles in Holly Boxes, &c. They intimate that their stocks in these lines are still practically complete, but suggest that orders be sent in as early as possible.

THE MARSHALL-WELLS HARDWARE COMPANY, Portland, Ore., is having plans prepared for a new warehouse in that city which will cost about $400,000.

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Hardware Merchants' Letterheads.—III.

NOT a great deal of originality or novelty characterizes the retail Hardware merchants' letterheads reproduced herewith, although our readers who are looking for pointers and improvements in this direction will probably find them suggestive. One of them is severely plain and direct in its make-up, while the others have a pictorial atmosphere which is pleasing and attractive.

An Old House Which Takes Pride in a Local Attraction.

Emphasis Laid on the Stove Department.

Headquarters on Tools, Sporting and Outing Supplies and Stoves.

A Graceful Enumeration of the Lines Handled.

Character is common sense plus will.
—Tom Masson.

Individuality.

Do you wait till some one else draws his breath before you draw yours?

Do you wait to see if some one else is going to wink, or kick, or stretch before you dare to do the same?

Do you wait until your friends say "this is a fine day" before you express yourself in that way?

Do you get your standard of work and play, and eating and sleeping, and drinking and religion, and everything else by what somebody else does in those lines?

If the superintendent asks you why you don't do more, do you answer him with, "Well, I do as much as So-and-So does"?

Stop to think a minute. Have you any right to let anybody else be your standard? Did any one ever tell you that you should take any human being that the sun shines on as a standard for your work, or anything that you do?

If it has been your custom, your habit, to copy what others do, quit it right now. Be yourself, and be your own self strong.

You don't need to hope that your efforts will ever rise above the level of the common unless you express your own individuality. You never can express yourself properly until you come out and act independently.

Develop your own mind, your own soul, and your own body so that your own think, your own ambition and your own strength will do the work and give expression to you, give yourself a personality that shines out so that people can see what it is worth.—*John L. Hunter.*

Thought and Character.

The prevailing condition of the mind builds the character of the individual. He who dwells in selfish thoughts will be selfish; he whose thoughts are pure, sympathetic and full of brotherly love will be noble; he who thinks despondency, jealousy, anger, will be stubborn and hateful.

It's the thoughts, desires and aspirations that shape the lives of human beings.

Reputation may deceive but character is true. No character can rise higher than the thought of the individual to whom it belongs. It is thought that attracts.

The person of miserable feelings makes everybody around him miserable. The one with happy thoughts spreads cheer wherever he goes.

People often wonder why they do not have more friends. The reason lies within themselves. To have friends one must be friendly.

Whatever thoughts (good or bad) are sent out from the individual come back to him with the same influence. Every wicked thought sent forth into the world makes more sin; every good thought creates more happiness.—*Henry Herbert Huff.*

Sincerity in Business.

Every little while something occurs which emphasizes the human belief that the other fellow is trying to get just a shade the best of a transaction, and the tendency is to act on that belief without waiting to get all the facts. The last case in point happened to be one where we were misjudged, but we know that we make the same kind of mistakes ourselves, too.

This case in point was an aggravated one. A customer who is a long way off telegraphed for a motor; he telegraphed the type and serial numbers of the motor he wanted duplicated, too, but unfortunately the telegraph company got the serial number mixed up.

We couldn't be sure from the type number whether a forge blower or a polishing lathe was wanted, and we did the only thing we could—telegraphed to find out.

We found out all right. The man who sent the telegram was mad, clear through. He said he didn't believe we had what he wanted and were just trying to gain time, and he had ordered elsewhere, any way.

Of course, when we explained how it had all happened at our end, he came in with a handsome letter saying that it was all right and he had been upset and worried by the delay.

Taking it all in all, it's a pretty good thing to cultivate a belief in the other fellow's sincerity as a basis for business. At least to believe in it up to the point where the other fellow gets a chance to explain.—*Emerson Monthly.*

Complaints from Customers.

Somehow the tendency of the selling unit to let the customer kick and not handle the kick with common sense plus dispatch at the time—settling it if possible instead of passing on the kick to the office—appears to me to show a lack of confidence.

Every firm to survive must be built on a foundation of serving a satisfied trade. Remember this when some one says we are fighting our customers.

Surely each salesman representing a business house of modern ideas and methods should be able to know enough about the goods, method of manufacturing, system of inspection and shipping, records, &c., to properly explain or adjust the complaint in such a businesslike way as will make a real friend of the kicker for himself and the firm.

To Pass on the Kick to the Office

reflects on the house and the salesman from some angle. To be right on the job with a

> "I am glad you have brought this to my attention. Let me see your order and our invoice, also the goods, for if things are as you say, we are wrong. You can well understand that we have the human element to contend with in our business. I shall, of course, see that my error is adjusted to your satisfaction, as I realize you are most fair and reasonable," &c.

The "our" feeling when thinking of the house on the part of the salesman is so necessary. So many, for the moment, fight the house for the customer. It hurts even to create the impression if you don't put it in words.

It's all in the confidence you have in yourself and what you know about business methods, your house and what you sell. Your, or, in fact, any salesman's experience gives a fund of knowledge that suggests what to do. It's like

Breaking a Pony to the Saddle,

to adjust a "kick." It's a serious proposition to the pony. He has a "kick" coming and you know it.

I shall never forget the first time I broke a little Pinto by the name of "Black Jack." He was a four-year-old who grew up man and fancy free on a lonesome looking foothill range.

It all happened suddenly; the event was rather forced on me, like the usual "kick," and while the boys stretched, blindfolded and saddled the pony he seemed to be some put out. I finally recovered enough to grasp the reins and get astride.

Between my weight on the saddle and the cinch squeezing his gizzard, the excited little cayuse was encouraged to a method of action that made my eyes turn in and my system feel as though I were strapped to a "milk shake" machine busy on an old maid's order.

All at once it dawned on me I could stick, and with spurs and quirt I began to dig into the issue. It was a busy morning but when I got back to the corral the

pony and I had hit a friendly basis of compromise.

I realized also that never again would I lack confidence with a horse who had a kick coming, though I didn't go out after them.

Black Jack afterward was my best friend on many a hard, tiresome ride.

You must dig into kicks and trouble. It's all easy once you ride a few down.

Make Up Your Mind

that your goods, the plan, the method, the company, the individuals, are right, then hit the saddle and stick to the game. Don't let the other fellow buck you off or tire you out with an unreasonable argument or demand. Hit hard and clean for a fair adjustment. Where fair to do so, compromise, and remember **you represent the house!**—*Geo. H. Eberhard to Salesmen.*

Merchants and Manufacturers' Exchange of New York.

Thirty Acres of Floor Space for the Exhibition of General Merchandise—Elaborate Provisions for the Accommodation of Buyers.

FREQUENT references have been made since last July in the daily and trade press concerning the projected Merchants and Manufacturers' Exchange of New York City. They relate to the creation of an immense centralized market place where sample lines of the manufactures of the world may be quickly examined by buyers from any part of the Globe.

The foundations for this unique structure have now been started, and it is the expectation of the projectors to have it ready for the installation of merchandise by December 1, 1910, leases for which are now being made. There will be two 12-story fireproof stone buildings erected on Lexington avenue, extending from Forty-sixth to Forty-eighth street, covering two city blocks, each 200 x 275 ft. and containing the equivalent of nearly 30 acres of floor space.

These buildings are being erected jointly by the New York Central & Hudson River and New York, New Haven & Hartford Railroads on their own land, and will be a part of the new Grand Central Station, which has been in course of erection for several years. The exhibition buildings will be uniform in architecture with the various other structures constituting the group. When completed the Exchange buildings will actually be over a portion of the track system, facilitating the transportation of merchandise to and from the exhibition.

Central Location.

The Merchants and Manufacturers' Exchange will thus be a tenant of the two important trunk line systems mentioned and likewise be strategically located in the most central and accessible part of New York. This will be true not only for surface, subsurface and elevated traffic, but the Exchange also will be but a few minutes distant from the new Pennsylvania Railroad Terminal at Thirty-first to Thirty-third streets and Seventh to Ninth avenues, now approaching completion. The Pennsylvania Terminal, it will be remembered, will be directly connected by subway with the Grand Central Station as soon as the extension to the Hudson Terminal Tunnels can be built, the franchise for which has already been granted.

As will be noted by those familiar with the metropolis, this site is also in the district containing the principal hotels, theatres and the large stores of the shopping district.

Character of Merchandise Exhibited.

The management is authority for the statement that five-eighths of the space in these buildings has already been taken. Some of the goods which it is expected will be on exhibition will include Hardware Specialties, House Furnishing Goods, Clocks, Silverware, Pianos and Musical merchandise, Men's Furnishings, Textiles, Leather Goods, Rugs, Upholstery, Wall Paper, Druggists' Sundries, Stationery and small wares, Clothing, Millinery, Cloaks, Suits, Furniture, &c.

Greeting the Buyer.

The plan is to meet the buyer on his arrival in New York at any railroad or boat terminal in response to notice by mail or wire, and transport him without charge by its own automobile service to the Exchange. There he will find all the conveniences of the modern club, including cable, telegraph, telephone and post office facilities, rooms for business consultation, reading and writing rooms, and a roof garden restaurant commanding a fine bird's-eye view of New York and vicinity.

These conveniences will be a part of the service provided by the management of the Exchange, all of which will be free to the visitor except meals, which he will pay for at club rates. It will be the aim of the Exchange officials to extend these courtesies in such manner as to leave the buyer free from any embarrassment whatever in their acceptance.

A Nucleus for the Enterprise.

A nucleus for an enterprise of this character is already available by the participation in it of the New York Furniture Exchange in the Grand Central Palace, Lexington avenue, between Forty-third and Forty-fourth streets, covering the entire square. This Exchange has been in existence for about 20 years and is the Eastern selling headquarters of more than 300 manufacturers with, it is said, a waiting list of as many more.

The statement is made by officials of the Merchants' Exchange that in 18 days in July last the New York Furniture Exchange was visited by 2000 buyers representing an aggregate of $100,000,000 capital invested in the retailing of furniture. The building now occupied will be razed and give place to other buildings, which will constitute a portion of the railroad terminal and with the two buildings here described be a part of a harmonious group of fine modern construction.

Samples Displayed in Charge of Manufacturers' Salesmen.

The plan is to rent space to manufacturers for the installation of samples, which will be in charge of their own experienced salesmen. The manufacturer in paying for space covers his entire expenditure except such as may be incidental to his particular section in the form of salary of salesmen or similar expense and one-half of the cost of partitions subdividing space, the service otherwise being maintained at the cost of the Exchange. The buyer on arrival at the Exchange will be taken in charge by the officials and conducted to such sections of it as he may indicate his particular interest in, where he will be met by the manufacturer's own representative.

Attracting Buyers.

Such an enterprise can only be maintained on a grand scale owing to the expense of getting in touch with and circularizing buyers all over the world, keeping track of hotel arrivals and reaching them through the medium of literature, advertising, &c. It is obvious that there must be such a comprehensiveness and diversity in the lines of merchandise as to attract buyers of many different lines.

Once the buyer is brought in contact with the manufacturer's representative, which is all that the Exchange purposes to do by means of the service described, and the supplying of a suitable place in which to transact business, it becomes only a question of suitable goods at right prices, and the ability of the salesman to consummate trade.

Concentration.

This Exchange seeks to concentrate in one locality a headquarters for the transaction of the maximum amount of business in a minimum interval of time owing to the association and grouping of the various interests. Aside from the railroad companies' interest in the renting of the two buildings, there is also the advantage accruing from the transportation of the visitors it will attract.

Among other railroads of which New York is the terminal and quickly accessible through the medium of the new Hudson, Jersey City & Hoboken Tunnels, opened last summer, are the Delaware, Lackawanna & Western, New York, Lake Erie & Western, Lehigh Valley and minor lines entering these terminals. There will also be a coliseum in one of the buildings, in which it is expected there will be some kind of a commercial or trade exhibition going on all the time somewhat similar in character to those held at the Madison Square Garden for years.

Officers and Directors.

The officers of the Merchants and Manufacturers' Exchange are E. P. V. Ritter, president; Charles E. Spratt, vice-president and general manager; Marcus Nathan, assistant general manager; B. F. Zalinger, assistant to the president; T. G. Waterman, assistant to the vice-president; Raymond D. Keating, secretary and treasurer; Paschal S. Ritter, assistant secretary and treasurer; H. B. Cooper, manager furniture exchange department, and George P. Koch, manager shoe and leather department. The Board of Directors consist of E. P. V. Ritter, George C. Smith, Charles E. Spratt, Alexander M. Stewart and Liston L. Lewis.

The prospectus now being issued contains in addition to descriptive matter, illustrations of the buildings, five floors of which are directly connected over Forty-seventh street, and a large map of New York below Central Park, showing the locations of important public buildings in relation to the exhibition building.

The Lockwood-Luetkemeyer-Henry Company Absorbs the McIntosh Hardware Corporation.

THE Lockwood-Luetkemeyer-Henry Company, Cleveland, Ohio, has acquired the business of the McIntosh Hardware Corporation, which passed out of existence on the 19th inst. As a result of this purchase the former company will take its place among the largest Hardware jobbing houses of the country. The Lockwood-Luetkemeyer-Henry Company was formed last May by the consolidation of the Lockwood-Taylor Hardware Company with H. W. Luetkemeyer & Sons.

Although the annual election will not take place until February, it is understood that G. W. Luetkemeyer will be president of the company; E. H. Luetkemeyer, vice-president; John C. Henry, secretary, and A. C. Hord, treasurer. George T. McIntosh will remain with the company until February when he will probably sever his connection, at least temporarily. Mr. McIntosh has been at the head of the McIntosh Hardware Corporation for 30 years, and will take a well earned vacation. The directors, other than the officers named, will be chosen from the heads of the departments, men who are interested in the company financially and as managers.

It is the intention ultimately to consolidate the business in the one plant of the McIntosh Hardware Corporation. A seven-story warehouse will be built to make room for the increased stock. The Lockwood-Taylor store will be continued until next April and the H. W. Luetkemeyer & Sons' store will be operated independently until January 1, 1911.

The Continental Company.

THE Continental Company, with headquarters at Detroit, Mich., has issued catalogues showing the Porter, Wabash, Philadelphia, Phillips and Owosso lines of Screen Doors, Window Screens and Window Screen Frames. Several new patterns of Screen Doors have been added; also the Superior Steel Corner Window Screen Frame. The Sherwood Metal Frame Extension Window Screens can be furnished at all the company's factories. The plants represented by the company are: A. J. Phillips Company, Fenton, Mich.; Owosso Mfg. Company, Owosso, Mich.; Philadelphia Screen Mfg. Company, Philadelphia, Pa.; Porter Screen Mfg. Company, Burlington, Vt.; Wabash Screen Door Company, Minneapolis, Minn.; Wabash Screen Door Company, Memphis, Tenn.; Queen Anne Screen Company, Burlington, Vt., and the Sherwood Metal Working Company, Syracuse, N. Y.

Hardware Association News.

THE MISSISSIPPI RETAIL HARDWARE ASSOCIATION, John E. Sommers, Clarksdale, secretary, will hold its next annual meeting at Columbus on the second Tuesday in March, 1910. Arrangements are being made to have a Hardware exhibition at the same time, particulars in regard to which will be announced in the near future.

As already announced, the annual convention and Hardware exhibition of the NEW YORK STATE RETAIL HARDWARE ASSOCIATION will be held at Rochester, March 1, 2, 3 and 4. Louis J. Ernst, manager of the exhibition, 120 East Main street, Rochester, has sent out a circular in which diagrams are given of the spaces for rental to exhibitors.

The exhibition will be held in the new Exposition Hall, two floors of which have been engaged, containing about 12,000 sq. ft. each. On the first floor there will be 60 spaces and on the second 52 spaces, the prices ranging from $35 to $50, according to size and location. Reservations for space will be made in the order in which applications are received.

The fourteenth annual meeting of the MINNESOTA RETAIL HARDWARE ASSOCIATION and its third Hardware exhibition will be held at St. Paul, February 22, 23, 24 and 25 next. The 1910 exhibition will probably not differ materially from that of other years except in size and refinement of detail, every improvement possible being made to facilitate the display of goods and to attract the attention of Hardware merchants to the exposition as the principal feature of the convention week. The association has leased the St. Paul Auditorium, which is one of the largest and finest structures in the Northwest, and has made arrangements to increase the amount of floor space over the area occupied by the last show. An area of about 25,000 sq. ft. has been provided in which to accommodate exhibits. Diagrams of floor space and prices of booths may be obtained from Thomas G. McCracken, assistant secretary of the association, Metropolitan Life Building, Minneapolis.

Pottery, Glass and Brass Salesmen's Association of America.

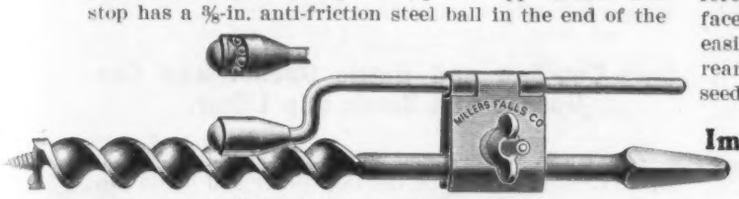
AT a meeting of the Pottery, Glass and Brass Salesmen's Association of America in the rooms of the Crockery Board of Trade, November 17, A. E. Snow, New York manager of the Plume & Atwood Mfg. Company, was elected president, and R. E. L. Wells, vice-president. The following Board of Directors was chosen: H. S. Mirrielees, W. W. Magee, W. R. Demorest, John Nixon, A. J. Stier, E. M. Unlack, A. A. Bean, W. S. Pitcairn, C. H. Taylor, C. J. Kerr, J. H. Venon, Henry Endemann, W. F. Rowe, Christopher Dierckx, W. M. Warrin, J. V. E. Vanderhoef, J. B. Boote and John Reddan.

This association is national in scope and was organized January 7, 1892, one of its principal objects being to afford immediate pecuniary benefit to families or others dependent on a member for support to the extent of $300, and which is at once available. The funds are obtained by the payment of dues averaging $3 to $4 annually. The membership is now in excess of 800.

E. DONALDSON CLAPP has been elected treasurer of the E. D. Clapp Mfg. Company, Auburn, N. Y., in place of F. A. Eldridge, resigned, and will remove to Auburn December 1, from Chicago, where he has been Western representative of the company for several years. Mr. Clapp is the grandson of Emerous D. Clapp, who founded the company in 1864. William S. Lee, who has completed 40 years' service with the company, has been elected vice-president in place of H. D. Titus, resigned, and secretary in place of F. A. Eldridge, resigned. D. E. Clapp continues as president.

Anti-friction Auger Bit Stop, No. 2.

The Millers Falls Company, Millers Falls, Mass., and 28 Warren street, New York, has put on the market the antifriction auger bit stop No. 2, patent applied for. The stop has a ⅜-in. anti-friction steel ball in the end of the

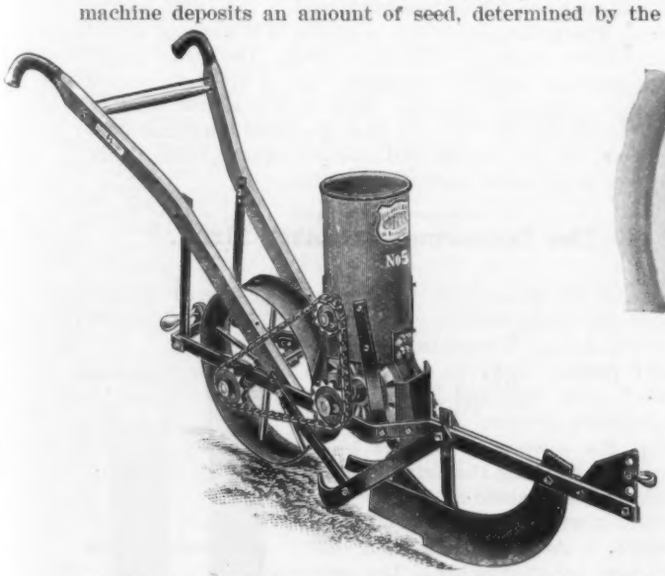


Anti-Friction Auger Bit Stop, No. 2.

socket, this ball, in turn, running on six smaller steel balls, as shown in the sectional view given. This construction greatly minimizes the friction in boring and prevents defacement of delicate or polished material in operation. The tool is 5½ in. long over all and the rod is 3-16 in. in diameter. There is an offset of ⅝ in. between centers. The tool is highly polished and nickel plated. In use the stop is clamped to the shank of an augur bit, as shown. The reverse end of the thumbscrew is fitted in a square socket to prevent turning. The goods are put up ½ doz. in a box.

The Harriman Seed Dropper, No. 5.

The Harriman Mfg. Company, Harriman, Tenn., is offering the seed dropper, shown herewith. At the present time the chief value of the machine is in the saving of cotton seed, on account of its high price. As the machine deposits an amount of seed, determined by the



The Harriman Seed Dropper No. 5, Which Drops as Many Seeds in a Hill as Desired and Locates Hills at Required Distances Apart.

operator, in hills at given distances, there is a considerable saving of seed in comparison with the method of distributing it in a continuous drill. It is pointed out that there is an additional saving in labor, as the plants come up in such a position that but little hoe-hand work is required, and cultivating can be done with a plow. Cotton plants will also come up early and have a hardy and more thrifty growth, it is explained, by being in hills instead of drills. The dropper is supplied with steel covering blades and a 4-in. or 6-in. concave rear wheel. A steel runner opener is a part of the equipment of the machine, but if a bull tongue opener is preferred it will be furnished upon request without additional charge. The seed wheel which does the dropping is located under the seed containing hopper. In the face of the wheel are 12 holes, in each of which is a plunger, which slides freely, and each plunger may be adjusted so as to form a pocket by falling back from the face of the wheel, while such other plungers as desired remain flush with the wheel face. The distance between hills when planting is determined by the number of pockets used. In the bottom of the hopper is a slotted hole standing directly above the face of the seed wheel, which revolves beneath it. The seeds passing through the slot enter each pocket as it passes beneath the slot and are carried forward as the wheel revolves until forced out by the falling plunger, when it drops to the face of the wheel. The depth of the pockets may be easily adjusted by means of a bolt in the slot at the rear of the plunger, thus determining the number of seeds to be dropped in each hill.

Improved One-Part Expansion Shields or Screw Anchors.

The Diamond Expansion Bolt Company of 90 West street, New York, has recently designed and patented an improvement in its one-part expansions or screw anchors, as illustrated herewith, the arrow in Fig. 1 pointing to the changed construction of the slot. The company explains that some difficulty has been experienced by the straight slot shield breaking through the

Fig. 1.—Improved One-Part Expansion Shields or Screw Anchors, with Bulb Shape at the End of the Slot to Permit Bending the Shield Out Flat and Return to Its Original Position.

solid portion of the shield; and when separated falling into two parts. With the bulb shape at the end of the slot, it is pointed out that it is possible to bend the shield out flat, as in Fig. 2, and return it to its original position, without danger of cracking through at this point. The company is replacing all of its present types

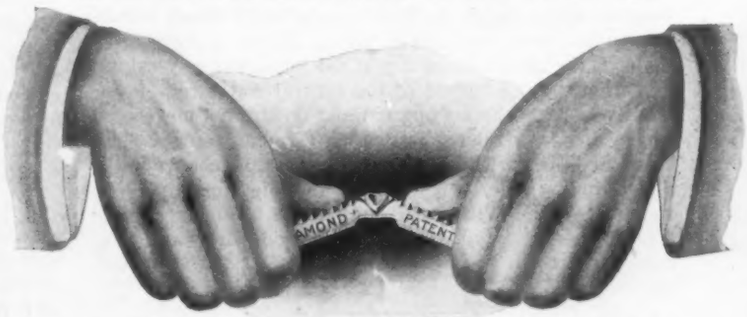


Fig. 2.—Manner of Bending Expansion Shield Out Flat Without Danger of Cracking.

with this improved design and several sizes are now on the market.

The Carborundum Carpenters' Round Bench Stone.

The Carborundum Company, manufacturer of abrasive materials, Niagara Falls, N. Y., is offering the carpenters' round bench stone shown herewith. The stone

The Carborundum Carpenters' Round Bench Stone, Permitting a Long, Sweeping Motion in Sharpening Tools.

is 4 in. in diameter and 1 in. thick. The sharpening area contains about 12 sq. in., which is referred to as giving plenty of room for the largest tools carpenters use, for a long sweeping circular motion, preventing the stone wearing unevenly, as every part of the surface is used. One side of the stone is made in coarse grit for taking out nicks and the other side in fine grit for bringing the tool to the desired keen finish edge. The stone is furnished with or without the guaranteed oak box holder.

Baldwin Acetylene Mine Lamp.

The F. E. Baldwin Mfg. Company, 104 Centre street, New York, is putting on the market the Baldwin acetylene lamp, designed more especially for use in gold, silver and copper mining in place of candles, there being other lamps made by the company especially adapted for mining coal. The safety chain and hook enables the user to hang it on a rock, timber or other projection or the present candlestick. It may also be conveniently carried on the miner's little finger or thumb while climbing ladders. The bottom section will hold sufficient carbide for five

Baldwin Acetylene Mine Lamp, for Copper, Silver and Gold Mining.

hours' burning. The carbide is deposited in the separable bottom, which joins the body at the O. G. bead, a rubber gasket insuring a tight joint. Water is introduced through the hinged cover top at the back, and any caking of carbide at the bottom of the central water tube is instantly removed by an upward and downward movement of the small central rod projecting through the top. The lamp, of brass, with a nickeled reflector, lava burner tip and swinging bale, is 5 in. high, and the lamp complete weighs 4½ oz. With each lamp there is an extra bottom, with screw cap, to carry a second portion of carbide with which to instantly replace the exhausted carbide.

Alcohol Gas Stove Chafing Dish.

Manning, Bowman & Co., Meriden, Conn., and 25 West Broadway, New York, have put on the market a mission

Alcohol Gas Stove Chafing Dish, Mission Style, Oak Base and Alcolite Burner.

style alcohol chafing dish made in polished copper, nickel plated and silver plated finishes. The capacity of this chafing dish is 3 pints and the diameter 9½ in. The handles are of ebony and the circular base of oak, with an ornamental copper band around it. The denatured alcohol fuel is gassified by raising a small quantity to the priming trough by a single pressure on the pump. Lighting this priming supply heats the tube and vaporizes the alcohol in the burner. The heat may be regulated from a simmer to the full force of the blue flame.

Sure Cut Can and Bottle Opener and Can Opener and Bottle Cap Lifter.

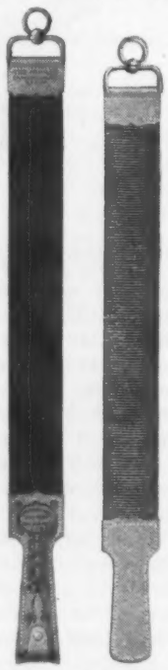
The Ira F. White & Son Company, 144 Walnut street, Newark, N. J., is offering the can opener and bottle cap lifter and the can and bottle opener shown herewith. The parts are lettered in the illustrations showing the particular use of each. The can opener and bottle cap lifter, Fig. 1, has two high grade oil tempered steel cutters, one for round and one for square cans, with a cap lifter on the top. The sliding knife can be suited to the size of round cans upon which the cutter is used. The metal parts are polished and nickel plated with a black rubberoid coated waterproof handle. In Fig. 2 is shown the can and bottle opener with two high grade oil tempered steel cutters, one for round and one for square cans. This opener is all metal and nickel plated.

Fig. 1.—Sure Cut Can Opener and Bottle Cap Lifter, No. 501.

Fig. 2.—Sure Cut Can and Bottle Opener, No. 95.

The Carborundum Razor Strop.

The razor strop shown herewith is offered by the Carborundum Company, Niagara Falls, N. Y. One side of the strop is corrugated by a special process and the corrugations filled with fine and delicate carborundum powder. It is explained that the powder is too fine to be graded by sifting through the finest silk, but is retained by floating it in running water, upon the surface of which it floats for something like 30 min. before sinking. The powder being thoroughly worked into the surface of the strop, it is pointed out, gives a gentle pull to the razor and works up a fine true, keen cutting edge without injury to the razor blade. The other side of the strop is of soft grained leather necessary to bring the razor blade to the finished, smooth edge. The strops, of which 19 different styles are made, are of the best horsehide stock, and are fitted with various styles of open ring swivel catches, hooks and double hooks. Another feature of several of the styles is the razor case handle, in which the razor can be slipped for safe keeping when not in use.



The Carborundum Razor Strop.

Klean-em Plate and Kettle Scraper.

The plate and kettle scraper shown herewith is offered by the L. C. Pond Company, Los Angeles, Cal. The device is 5½ in. over all, with stiff wire handle, about the

lower end of which is a one-piece tinned steel clamp turned out at the lower side, which is used for scraping. To the other side of the clamp is securely riveted a heavy piece of red sheet rubber. The steel scraper is for cleaning pots, kettles, frying pans, scraping off paint, &c. The rubber scraper is for removing grease from fine china,

Klean-em Plate and Kettle Scraper.—Can Also Be Used for Cleaning Sinks, Window Panes, China, Pots, Fry Pans, &c.

sinks and smooth surfaces, without leaving scratches such as may result from the use of a knife. The goods are mounted ½ dozen, each on an attractive show case card, and are intended to retail at 10 cents each.

Peck, Stow & Wilcox Company.

The Peck, Stow & Wilcox Company, Southington, Conn., and 27 Murray street, New York, has begun the manufacture of an extra heavy star rivet, box joint side cutting plier, in 9-in. size only. The plier is designed to supply a demand for a high grade tool required by electricians for exacting and heavy work. The company refers to it as carefully made, well tempered and bearing its guarantee trademark. It is numbered 9 and put up in boxes of one each. The company has also supplemented its line of snips and tinners' tools by the addition of the Trojan snip, designed especially for cutting curves and irregular shapes. It cuts straight or curved lines, and is particularly serviceable in connection with scroll or cornice work. It is not only suitable for cutting sheet metal but cuts pasteboard, mica, linoleum, veneering and kindred material equally well. The snips are forged from high grade steel and bear the company's guaranteed trademark. The snip is numbered 79, has a 3-in. cut, is 13 in. long over all and put up singly in a box.

PAINTS, OILS AND COLORS

Animal, Fish and Vegetable Oils—

	₱ gal. bbl. lots
Linseed, Out-of-town	.64 @65
City, Raw	.65 @66
Boiled, 1¢ ₱ gal. advance on Raw.	
Raw, Calcutta, in bbls	.75 @..
Lard, Prime Winter	1.10@..
Extra No. 1	.60 @64
No. 1	.55 @56
Cotton-seed, Crude, f.o.b. mill	5¾@ 6
Summer, Yellow, prime	6¾@ 6¾
Summer, White	7½@ 7½
Yellow, Winter	7¼@ 7½
Tallow Oil, Acidless	.60 @65
Menhaden, Brown, Strained	.29 @31
Northern, Crude	@..
Southern	.26 @..
Light Strained	.29 @32
Bleached, Winter	.32 @34
Extra Bleached Winter	.34 @36
Cocoanut, Ceylon	₱ lb 8.45@8.50
Cochin	9½@10½
Cod, Domestic, Prime	.38 @40
Newfoundland	.40 @44
Red Elaine	.52 @..
Saponified	₱ lb 6½@ 7¼
Olive, Yellow	.80 @90
Neatsfoot, Prime	.62 @65
Palm, Lagos	₱ lb 6½@..

Mineral Oils—

	₱ gal.
Black, 29 gravity, 25@30 cold test	12½@13
29 gravity, 15 cold test	.13 @13½
Summer	.12 @12½
Cylinder, light filtered	.20 @20½
Dark, filtered	17½@18
Paraffine, 903-907 sp. gravity	.11 @11½
903 sp. gravity	.13 @13½
883 sp. gravity	10½@11
Red	.13 @13½

Miscellaneous—

Barytes:	
White, Foreign	₱ ton $18.50@20.50
Amer., floated	₱ ton 17.00@18.00
Off color	₱ ton 12.50@15.00
Chalk in bulk	₱ ton 3.00@ 3.40
China Clay, Imported	₱ ton 11.50@18.00
Cobalt, Oxide	₱ 100 lb 1.45@ 2.60
Whiting, Commercial	₱ 100 lb 45@50
Gilders	₱ 100 lb .52@ .64
Ex. Gilders	₱ 100 lb .56@ .68

Putty, Commercial—₱ 100 lb

In bladders	$1.70@2.00
In bbls. or tubs, 100 lb	1.20@1.45
In 1 lb to 5 lb tins	2.65@3.25
In 12½ to 50 lb tins	1.50@1.90

Spirits Turpentine—₱ gal.

In Oil bbls	58½@59
In Machine bbls	.59 @59½

Glue—

	₱ lb
Cabinet	.12 @15
Common Bone	7½@ 9
Extra White	.18 @24
Fish, liquid, 50 gal. bbls., per gallon	.60 @1.20
Foot Stock, White	.12 @14
Foot Stock, Brown	.9 @11
German Common Hide	.10 @12
German Hide	.12 @18
French	.10 @40
Irish	.13 @16
Low Grade	.10 @12
Medium White	.14 @19

Gum Shellac—

	₱ lb
Bleached, Commercial	.16 @17
Bone Dry	.20 @21
Button	.20 @30
Diamond I	.22 @23
Fine Orange	.18 @20
A. C. Garnet	15½@16
Light Orange	.17 @19
Kala Button	.13 @15
D. C	23½@24
Octagon B	.20 @22
T. N	14¾@16
V. S. O	.21 @22

Colors in Oil—

	₱ lb
Black, Lampblack	.12 @14
Blue, Chinese	.36 @46
Blue, Prussian	.32 @36
Blue, Ultramarine	.13 @16
Brown, Vandyke	.11 @14
Green, Chrome	.12 @16
Green, Paris	@24
Sienna, Raw	.12 @15
Sienna, Burnt	.12 @15
Umber, Raw	.11 @14
Umber, Burnt	.11 @14

White and Red Lead, &c.—

	₱ lb
Lead, English White, in Oil	9½@ 9¾
Lead, American White:	
Dry and in Oil, 100, 250 and 500 lb kegs	6¾
Dry and in Oil, 25 and 50 lb kegs	7
Dry and in Oil, 12½ lb kegs	7¼
In Oil, 25 lb tin pails	7¼
In Oil, 12½ lb tin pails	7¾
In Oil, 1, 2, 3 and 5 lb tin cans, ass't	8¾
Red Lead and Litharge:	
In 100 lb kegs	7
In 25 and 50 lb kegs	7¼
In 12½ lb kegs	7½
In lots of less than 500 lbs, ½¢ ₱ lb advance over above prices of White and Red Lead and Litharge.	
Lead, American. Terms: On lots of 500 lbs and over, 60 days, or 2% for cash if paid in 15 days from date of invoice.	

Zinc, Dry—

	₱ lb
American, dry	5¾@ 6¼
Red Seal (French process)	6¾@ 7
Green Seal	7¼@ 7½
German Red Seal (French process)	7½@ 7⅝
Green Seal	7¾@ 8
White Seal	8⅜@ 9
French, Red Seal	7½@ 8¼
Green Seal	.10 @10¼

Dry Colors—

	₱ lb
Black, Carbon	.5 @10
Black Drop, American	3½@ 8
Black Drop, English	.5 @15
Black, Ivory	.16 @20
Lamp, commercial	.3 @ 5
Blue, Celestial	.4 @ 6
Blue, Chinese	.30 @31
Blue, Prussian, Domestic	.28 @30
Blue, Ultramarine	.5 @15
Brown, Spanish	½@ 1
Carmine, No. 40	2.65@2.75
Green, Chrome, ordinary	3½@ 5
Green, Chrome, pure	.17 @25

Metallic Paint, ₱ ton,	
Brown	$16.50@$22.00
Red	$14.00@$18.00
Ocher, American	₱ ton $13.00@15.00
American Golden	.1 @ 5
French	.1¼@ 2
Foreign Golden	.3 @ 4
Orange Mineral, English	.10 @12
French	12¾@13
German	.12 @13
American	8½@10
Red, Indian, English	.5 @ 7
American	.3 @ 3¼
Red, Turkey, English	.4 @10
Red, Tuscan, English	.7 @10
Red, Venetian, Amer.	₱ 100 lb $0.75@1.50
English	₱ 100 lb $1.15@1.60
Sienna, Italian, Burnt and Powdered	.3 @ 9
Italian, Raw, Powdered	.3 @ 7
American, Raw	.2¼@ 3
American Burnt and Pow'd	.2¼@ 3
Talc, French	₱ ton $18.00@25.00
American	₱ ton 15.00@25.00
Terra Alba, French	₱ 100 lb .80@1.00
English	₱ 100 lb .90@1.00
American	₱ 100 lb, No. 1, .75@ .80
American	₱ 100 lb, No. 2, .60@ .65
Umber, T'key, Bnt, & Pow.	2¾@ 3
Turkey, Raw and Powdered	2¾@ 3
Burnt, American	.2 @ 2¼
Raw, American	.2 @ 2½
Yellow, Chrome, Pure	12¾@13
Oxide, Red, American	.2 @ 7½
Vermilion, English, Imported	@70
Chinese	$0.90@1.00

THE IRON AGE

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Special Goods.—Quotations printed in small type (Roman) relate to goods of particular manufacturers, who request the publication of the prices named and are responsible for their correctness. They usually represent the prices to the small trade, lower prices being generally obtainable by the fair retail trade, from manufacturers or jobbers.

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Names of Manufacturers.—For the names and addresses of manufacturers see the advertising columns and also THE IRON AGE DIRECTORY, issued annually, a book of 376 pages, which is sent free of charge to every subscriber to *The Iron Age*. It gives a classified list of the products of our advertisers and thus serves as an up-to-date DIRECTORY of the Iron, Hardware and Machinery trades.

Standard Lists.—"The Iron Age Standard Hardware Lists," 218 pages, price $2, prepaid, contains the list prices of many leading goods.

Additions and Corrections.—The trade are requested to suggest any improvements with a view to rendering these quotations as correct and as useful as possible to Retail Hardware Merchants.

Adjusters, Blind—

North's 10%
Upson's Patent 25%
Zimmerman's—See Fasteners, Blind.

Window Stop—

Ives' Patent 25%
Ives' Stop Bead Screws and Washers 25%
Taplin's Perfection 25%

Anti-Rattlers—

Fernald Mfg. Co. Burton Anti-Rattlers, ℔ doz. pairs, Nos. 1, $0.75; 2, $0.60; 3, $0.65; 4, $1.00; 5, $0.50.
Quick Shifter, ℔ doz. pairs ..... $2.00@$3.00
Spitzli Quick Shifter, ℔ doz. pairs ..... $1.65@$1.75

Anvils—American—

Eagle Anvils ..... ℔ @9 ¢
Hay-Budden, Wrought ..... 9½@9¾ ¢
Trenton ..... ℔ 9½@9¾ ¢

Imported—

Swedish Solid Steel Paragon, ℔ lb ..... 9½@9¾ ¢
Peter Wright & Sons, ℔ lb, 84 to 349 lb, 10½ ¢; 350 to 600 lb, 11¢.

Anvil, Vice and Drill—

Millers Falls Co., $18.00 ..... 15&10%

Augers and Bits—

Com. Double Spur 80%
Jennings' Patn., Bright. 65&10@70%
Black Lip or Blued ... 65@65&5%
Boring Mach. Augers 70%
Car Bits, 12-in. twist ..... 40&10%
Ford's Auger and Car Bits ..... 40&5%
Ft. Washington Auger Co. 35%
Forstner Pat. Auger Bits 25%
C. E. Jennings & Co.:
No. 10 ext. lip. R. Jennings' list, 25&7½%
No. 30, R. Jennings' list 50%
Russell Jennings' ..... 25&15&2½%
Mayhew's Countersink Bits 45%
Pugh's Black 20%
Pugh's Jennings' Pattern 35%
Snell's Auger Bits ..... 60&10%
Snell's Bell Hangers' Bits 60%
Snell's Car Bits, 12-in. twist 60%
Snell's King Auger Bits 50%
Snell's Star Auger Bits ..... 50&10%
Swan's Auger Bits ..... 65&10@70%
Swan's, Jennings' Pattern 50%

Expansive Bits—

Ford's, Clark's Pattern 66⅔%
C. E. Jennings & Co., Steer's Pat. 25%
Lavigne Pat., small size, $18.00; large size, $26.00 ..... 60&10%
Swan's 60%

Gimlet Bits—

Per gro.
Common Dbl. Cut ..... $3.00@3.25
German Pattern, Nos. 1 to 10. $4.75; 11 to 13, $5.25

Hollow Augers—

Bonney Pat., per doz. . $5.50@6.00
Ames ..... 20&10%
Universal 20%

Ship Augers and Bits—

Ship Augers ..... 40&10@50%
Ford's ..... 33⅓&5%
C. E. Jennings & Co.:
L'Hommedieu's 6%
Watrous' ..... 33⅓&7½%
Snell's 50%

Awls—

Elmore Tool Mfg. Co.:
Tinners' and Brad Awls ..... 33&7½%
Scratch Awls 60%

Axes—

Single Bit, base weights: Per doz.
First Quality ..... $4.75@5.00
Second Quality ..... $4.25@4.50
Double Bit, base weights:
First Quality ..... $7.00@7.50
Second Quality ..... $6.50@6.75

Axles—

Iron or Steel.

Concord, Loose Collar ... 4¼@4½¢
Concord, Solid Collar .... 4½&5 ¢
No. 1 Common, Loose ... 3½@4 ¢
No. 1½ Com., New Style. 4¼@4¾¢
No. 2 Solid Collar ..... 4¼@4½¢
Half Patent.
Nos. 7, 8, 11 and 12 ..... 70%
Nos. 13 to 14 ..... 70%
Nos. 15 to 18 ... 70&10@70&10&5%
Nos. 19 to 22 ... 70&10@70&10&5%

Boxes, Axles—

Common and Concord, not turned ..... lb., 5@5¢
Common and Concord, turned, lb., 6@7¢
Half Patent ..... lb., 9½@10¢

Bait—

Fishing—

Hendryx:
A Bait 20%
B Bait 25%
Competitor Bait ..... 20&5%

Balances—

Sash—

Caldwell new list ..... 50&10%
Pullman ..... 50&10%

Spring—

Light Spring Balances. 50&10@60%
Chatillon's:
Light Spg. Balances ..... 50&10@60%
Straight Balances ..... 40&10@50%
Circular Balances ..... 50&10@60%
Large Dial ..... 30@30&10%

Bars—

Crow—

Steel Crowbars, 10 to 40 lb. .... per lb., 2¾@3¢

Prying and Pinch—

Elmore Tool Mfg. Co. 75%

Towel—

No. 10 Ideal, Nickel Plate .. ℔ gro. $8.50

Beams, Scale—

Scale Beams ..... 40@40&10%
Chattillon's No. 1 ..... 30%
Chatillon's No. 2 ..... 40%

Beaters,

Carpet—

Holt-Lyon Co.:
No. 12 Wire Coppered ℔ doz. $0.80; Tinned $0.85
No. 11 Wire Coppered ℔ doz. $1.15; Tinned $1.29
No. 10 Wire Tinned ..... ℔ doz. $1.50

Beaters Egg—

Dover Stamping & Mfg. Co.:
Genuine Dover, per gro., No. 1, Tumbler Size, $7.50; No. 2, Family Size, $7.50; No. 3, Extra Family Size, $24.00; No. 4, Hotel Size, $33.00.
Holt-Lyon Co.:
Holt, per doz., No. 5, Jap'd, $0.80; No. A, Jap'd, $1.15; No. B, Jap'd, $1.85; No. 6, Jap'd, $1.65.
Lyon, Jap'd, per doz., No. 2, $1.35.
Taplin Mfg. Co.:
Improved Dover, per gro., No. 60, $6.00; No. 75, $6.50; No. 100, $7.00; No. 102, Tin'd, $8.50; No. 150, Hotel, $15.00; No. 152, Hotel Tin'd, $17.00; No. 200, Tumbler, $8.50; No. 202, Tumbler Tin'd, $9.50; No. 300, Mammoth, per doz., $25.00.

Bellows—

Blacksmith, Standard List:
Split Leather ..... 60@60&10%
Grain Leather ..... 50@50&10%

Hand— Net Prices

Inch..	*6*	*7*	*8*	*9*	*10*
Doz..	*$4.50*	*5.50*	*6.00*	*7.00*	*7.50*

Molders—

Inch..	*10*	*12*	*14*	*16*
Doz..	*$8.50*	*11.00*	*13.50*	*14.50*

Bells—

Cow—

Wrought Cow Bells 75%
Jersey ..... 75&10%
Texas Star 50%

Door—

Reading Hardware Co. 50%
Home, R. & E. Mfg. Co.'s ..... 55&40%

Hand—

Polished, Brass ..... 60@60&10%
White Metal ..... 60@60&10%
Nickel Plated ..... 50&10%
Swiss ..... 50&10%

Miscellaneous—

Farm Bells ..... lb., 2½@3¢
Church and School .... 60@60&5%

Belting—

Leather—

Extra Hvy. Single and Dble. 55%
Heavy, Single and Double ... 60%
Medium, Single and Double, 60&10%
Light, Single and Double. 60&10&10%
Shoulder, Single and Double. 75%
Standard ..... 70&10%
Cut Leather Lacing, Strictly No. 1 ..... 45%
Leather Lacing Sides, per sq. ft, Raw Hide, No. 1, in sides 17 sq. ft. and over, 27¢; No. 2, under 17 sq. ft. ..... 26¢

Rubber—

Competition (Low Grade), 70&10@75%
Standard ..... 60&10@70%
Best Grades ..... 50@50&10%

Benders and Upsetters, Tire—

Green River Tire Benders and Upsetters 20%

Bicycle Goods—

John S. Leng's Son & Co.'s 1909 list: Chain, Parts, Spokes 50%
Tubes 60%

Blocks

Tackle—

Common Wooden ..... 75@75&10%
Lane's Patent Automatic Lock and Junior 30%
See also Machines, Hoisting.

Boards, Stove—

Paper and Wood Lined. 50&10@60%
Embossed ..... 50&10@60%

Bobs, Plumb—

Keuffel & Esser Co. ..... 33⅓&10%

Bolts

Carriage, Machine, &c.—

Common Carriage (cut thread): ⅜ x 6 and smaller ..... 70&7½%
Larger and longer ..... 65&5%
Common Carriage (rolled thread): ⅜ x 6, smaller and shorter, 70&12½%
Phila. Eagle, $3.00 list. 80&5@80&10%
Bolt Ends, with C. & T. Nuts, 65&5%
Machine (Cut Thread): ⅝ x 4 and smaller .... 70&12½%
Larger and longer ..... 65&10%

Door and Shutter—

Wrought Iron:
Wrought Barrel Japanned. 80&10&10@85%
Barrel Bronzed ..... 60&10@70%
Spring ..... 70&10&10@80%
Square Neck ..... 75&10@80%
Square ..... 80@80&10%
Ives' Mortise Door 25%
Ives' Wrought Door 25%

Expansion—

F. H. Evans' Crescent ..... 40@60%
Richards Mfg. Co. ..... 55&10%
Star Expansion Bolt Co.:
Star, Lag Screw Type .. 60&10&5&2½%
Star, Wood Screw Type 40%
Star, Machine, Single Wedge 60%
Star, Machine, Double Wedge. 60@10%
Star Toggle Bolts 60%
Steward & Romain Mfg. Co.:
Style No. 13, Double ..... 60@10%
Style No. 1, Single ..... 60@10%
Style No. 100, Dbl. Jaw, Single .. 55%
Lag Screw 66⅔%
Star Screw Anchors, Hollow 40%

Plow and Stove—

Plow ..... 65&5@70%
Stove ..... 85&5@85&10%

Tire—

Common Iron 80%
Norway Iron 80%
American Screw Co.:
Norway Phila., list Oct. 16, '84 .. 80%
Eagle Phila., list Oct. 16, '84. 82½%
Bay State, list Dec. 23, '99 ..... 80%
Franklin Moore Co.:
Norway Phila., list Oct. 16, '84 .. 80%
Eagle Phila., list Oct. 16, '84 .. 82½%
Eclipse, list Dec. 23, '99 ..... 80%
Russell, Burdsall & Ward Bolt & Nut Co.:
Empire, list Dec. 23, '99 ..... 80%
Norway Phila., list Oct. '84 ..... 80%
Eagle 82½%
Shelton Co.:
Tiger Brand, list Dec. 23, '99 ... 80%
Phila., Eagle, list Oct. 16, 1884 .. 82½%
Upson Nut Co.:
Tire Bolts ..... 75&10&5%

Borers, Bung—

Enterprise Mfg. Co., No. 1, $1.25; No. 2, $1.75; No. 3, $2.50 each 25%

Boxes, Mitre—

C. E. Jennings & Co. 25%
Langdon, New Langdon and Langdon Improved, 20&10%; Langdon Acme ..... 15&10%

Braces—

Common Ball ..... $1.50@$1.75
Barber's ..... 50&10&10@60&10%
Fray's Genuine Spofford's 60%
Fray's No. 61, 168, 206, 614 ..... 50%
C. E. Jennings & Co. ..... 50&7½%
Mayhew's Ratchet 40%
Mayhew's Quick Action Hay Patent ..... 40&10%
Millers Falls Drill Braces ..... 25&10%
P. S. & W. Co., Peck's Pat Revised List ..... 60@60&5%

Brackets—

Wrought Steel ..... 80@80&5%
Griffin's Pressed Steel ..... 75&10&5%
Griffin's Folding Brackets .. 70&10 &5%
Stanley's Pressed Steel ..... 75&10&5%
Stanley's Folding Brackets .. 70&10&5%
Taplin Victor Handy Egg Beater Bracket ..... ℔ doz. $1.50

Broilers—

Kilbourne Mfg. Co. ..... 75&20%
Wire Goods Co. ..... 75&10%

Butts—

Brass—

Wrought 65%
Cast Brass, Thebout's ..... 40&10%

Wrought Steel—

BRIGHT.
Light Narrow, Light Reversible ..... 75&5%
Reversible and Broad. 75&10%
Loose Joint, Narrow, Light Inside Blind, &c. 75%
Back Flaps, Table Chest. 70%
BRONZED.
Light Narrow, Loose Pin.. 55%
Light, Loose Pin, Ball Tip. 65%
Broad 55%

Extra, 5@—

Cages, Bird—

A. B. Hendryx Co.:
Brass: Series 3000, 5000, 1100, net list; 1200, 15%; 200, 300, 900 ..... 30%
Bronze: Series 700, 800 ..... 30%
Enameled 35%
O. Lindemann Co.:
Japanned Canary 40%
Brass Canary 30%
Parrott Cages, Aviaries, Cage Stands 25%

Calks, Toe and Heel—

Blunt, 1 prong, per 100 lb., $3.80@$4.00
Sharp, 1 prong, per 100 lb., $4.30@$4.50
Burke's, 1 pg. Blunt Toe, 3¾¢; 2 pg. Blunt Toe, 4¼¢; 1 pg. Sharp Toe, 4¼¢; 2 pg. Sharp, 4¾¢; Blunt Heel, 4¼¢; Sharp Heel.....4¾¢
Perkins', Blunt, ₱ lb, 3.65¢; Sharp, 4.15¢

Caps— Primers—

Berdan Primers, $2 per M.20&5%
Primer Shells and Bullets..15&10%
All other primers per M.$1.52@1.60

Cartridges—

Blank Cartridges:
32 C. F., $5.50.....10&5%
38 C. F., $7.00.....10&5%
22 cal. Rim, $1.50.....10&5%
32 cal. Rim, $2.75.....10&5%
B. B. Caps, Con. Ball, Swgd.$1.90
B. B. Caps, Round Ball.....$1.90
Central Fire.....25%
Target and Sporting Rifle..15&5%
Primed Shells and Bullets..15&10%
Rim Fire, Sporting.....50%
Rim Fire, Military.....15&5%

Casters—

Bed .....65&10@70%
Plate .....60@60&10%
Philadelphia .....70&10@75%
Gem (Roller Bearing).....70&10&10&5%
Steel Gem (Roller Bearing).....70%
Standard Ball Bearing.....45%
Yale (Double Wheel) low list...40&10%

Chain, Proof Coil—

American Coil, Straight Link:

3-16	¼	5-16	⅜	½	⅝
$7.70	5.05	4.10	3.50	3.35	3.25

¾-⅞-1. 1⅛ to 1¼ inch. $3.15 3.25
German Coil.....70&5%
German Pattern Coil:
6-0 to 1.....70&10&5%
2 and 3.....60&10&10@70%
4, 5 and 6.....50&10@50&10&5%

Halter—

Halter Chains.....60&5@60&10%
German Pattern Halter Chains, list July 24, '97.....70&5%
Covert Mfg. Co.:
Halter .....30&10&10%

Trace, Wagon, &c.—

Traces, Western Standard: 100 pr. 6½—6-3, Straight, with ring.$26.00
6½—6-2, Straight, with ring.$27.00
5½—8-2, Straight, with ring.$30.00
6½—10-2, Str'ght, with ring.$35.00
NOTE.—Add 2c per pair for Hooks Twist Traces: add per pair for Nos. 2 and 3, 2c; No. 1, 3c; No. 0, 4c to price of Straight Link.
Eastern Standard Traces, Wagon Chain, &c.....70&10@—%

Miscellaneous—

Jack Chain:
Iron .....60&10&10@70%
Brass .....60&10&10@70%
Safety and Plumbers' Chain..75%
Gal. Pump Chain....lb., 4½@5%
Bridgeport Chain Co.:
Triumph Halter and Coil.35&2½@40%
Triumph Dog.....50&10@60%
Brown Halter and Coil.....45@50&5%
Covert Mfg. Co.:
Breast, Halter, Heel, Rein, Stallion, Post.....30&10&10%
Oneida Community:
American Halter, Dog and Kennel Chains .....35&2½@40%
Niagara Dog Leads and Kennel Chains .....45@50&5%
Wire Goods Co.:
Dog Chain.....70%
Universal Dbl.-Jointed Chain..50&10%

Chain and Ribbon, Sash—

Oneida Community:
Steel Chain.....60%
Pullman:
Bronze Chain, 60%; Steel Chain, Copp'ered .....60&10%
Sash Chain Attachments, per set.88¢
Aluminoy Sash Ribbon, per 100 ft. .....$2.00@$5.00
Sash Ribbon Attachments, per set..8¢

Chalk—

Carpenters' Blue....gro., 50@55¢
Carpenters' Red....gro., 50@55¢
Carpenters' White...gro., 50@45¢

Checks, Door—

Bardsley's 33⅓%
Reading, Ogden.....20&5%
Pullman, per gro.....$54.00
Russwin 33⅓%

Chests, Tool—

American Tool Chest Co.:
Boys' Chests, with Tools.....55%
Youths' Chests, with Tools.....40%
Gentlemen's Chests, with Tools..30%
Farmers', Carpenters, etc., Chests, with Tools 20%
Machinists' and Pipe Fitters' Chests, Empty.....45%
Tool Cabinets.....40%
C. E. Jennings & Co.'s Machinists' Tool Chests.....7½%

Chisels—

Socket Framing and Firmer

Standard List.....80&10@—%
Buck Bros.....30%
C. E. Jennings & Co.:
Socket Firmer No. 10.....25&7½%
Socket Framing No. 15.....25&7½%
R. & E. Mfg. Co.....70@70&10%
Swan's .....66⅔@70%
L. & I. J. White & Co.....30@30&5%

Tanged—

Tanged Firmers.....35&10@40%
Buck Bros.....30%
C. E. Jennings & Co. Nos. 191, 181..25%
R. & E. Mfg. Co.....25@30&5%
L. & I. J. White Co.....25&5%

Box—

Elmore Tool Mfg. Co.....50%

Cold— lb.

Cold Chisels, good quality..13@15¢
Cold Chisels, fair quality..11@12¢
Cold Chisels, ordinary.... 9@10¢
Elmore Tool Mfg. Co.:
Cold Chisels.....50&5%

Chucks—

Almond Drill Chucks.....35%
Almond Turret Six-Tool Chuck.....40%
Beach Pat. each $8.00.....35&5%
Cincinnati Chuck Co.:
Independent 4-jaw Reversible.....35%
Jacobs' Drill Chucks.....35%
Skinner Lathe Chucks:
Independent 35%
Universal, Reversible Jaws.....35%
Universal, Com. Style Jaws.....40%
Combination, Reversible Jaws....35%
Combination, Com. Style Jaws...40%
Round Body or Box Body, 2 Chuck Jaws 25%
Geared Scroll Chucks.....25%
Drill Chucks:
New Model, 25%; Geared Pattern, 25%; Skinner Patent, ..25%
Positive Drive.....40%
Planer Chucks.....20%
Standard 45%
Drill Press Vises.....30%
Face Plate Jaws.....35%
Standard Tool Co.:
Improved Drill Chuck.....45%
Union Mfg. Co.:
Combination, Nos. 1, 2, 3, 4, 5, 6, 7, 8 and 17, 40%; No. 21.....35%
Scroll Combinations, Nos. 83 and 84 .....30%
Geared Scroll, Nos. 33, 34 and 35..25%
Independent Iron, Nos. 18 and 318.35%
Independent Steel, No. 64.....25%
Union Drill, Nos. 000, 00, 100, 101, 102, 103, 104.....35%
Union Czar Drill.....25%
Union Geared Drill Chuck.....25%
Universal, 11, 12, 16, 17, 13, 14, 15..40%
Universal No. 42.....35%
Iron Face Plate Jaws, Nos. 28, 30, 48 and 50.....35%
Steel Face Plate Jaws, Nos. 70 and 72 .....30%
Westcott Patent Chucks:
Lathe Chucks.....50%
Little Giant Auxiliary Drill.....50%
Little Giant Double Grip Drill...50%
Little Giant Drill, Improved.....50%
Oneida Drill.....50%
Scroll Combination Lathe.....50%

Clamps—

Carriage Makers', Star, P., S. & W. Co. .....50@50&5%
Besly, Parallel.....33⅓&10%
Hammer & Co.:
Adjustable .....20&5%
Carriage Makers' H. P. Screw.40&5%
Myers', Standard and Wenzelmann Hay Rack.....50%
Saw Clamps, see Vises, Saw Filers'

Cleaners, Drain,

Iwan's Champion, Adjustable.....50%
Iwan's Champion, Stationary....40&5%

Cleavers, Butchers'—

Foster Bros.....30%
L. & I. J. White Co.....30%

Clippers, Horse and Sheep—

Chicago Flexible Shaft Co.:
1902 Chicago Horse, each..$10.75
20th Century Horse, each...$5.00
Lightning Belt Horse, each..$15.00
Chicago Belt Horse, each..$20.00
Stewart's Enclosed Gear Ball Bearing Horse, each.....$7.50
Stewart's New Model Sheep Shearing Machine, each..$12.75
Stewart Enclosed Gear Shearing Machine, No. 8, each..$9.75
} 25 & 10

Clips, Axle—

Regular Styles.....80&80&10%

Cocks, Brass—

Hardware list:
Plain Bibbs, Globe, Kerosene, Racking, Liquor, Bottling, &c 75%
Compression Bibbs.....75%

Compasses, Dividers, &c.

Ordinary Goods.....75@75&5%

Conductor Pipe,—

All territories, L. C. L.
Galvanized Steel...75&10&5%@—%
Charcoal .....50&10&7½%@—%
Copper .....50&10@—%
Terms, 60 days: 2% cash 10 days. Factory shipments generally delivered.
See also Eave Troughs.

Coolers, Water—

L. & G. Mfg. Co.:

Galvanized, Lined, side handles.					
Gal....	2	3	4	6	8
Each ...	$1.30	1.60	2.00	2.30	3.00
White Enameled Lined, Side Handles:					
Gal....	2	3	4	6	8
Each ...	$2.40	2.80	3.50	4.50	5.60
Agate Lined, Side Handles:					
Gal....	2	3	4	6	8
Each ...	$3.00	3.40	4.30	5.30	6.60

} 10%

Coppers, Soldering—

Soldering Coppers, 3 lb. to pair and heavier, 21¢; lighter than 3 lb. to pair.....23¢

Cord— Sash—

Braided, Drab.....lb. 35¢
Braided, White, Com., Nos. 8 to 12, 27¢; No. 7, 27½¢; No. 6, 28½¢.
Cable Laid Italian, lb., No. 18..37¢
Italian, lb., A, No. 18, 25¢; B, 22¢
Common India.....lb., 11@11½¢
Cotton Sash Cord, Tw'td.18½@22¢
Patent Russia.....lb....20¢
Cable Laid Russia.....lb...21¢
India Hemp, Br'd'd.....lb...21¢
India Hemp, Twisted...lb..13@14¢
Patent India, Twisted..lb...17¢
Eddystone, Braided, Nos. 8 to 12, 26¢; 7, 26½; 6, 27½¢.
Harmony Cable Laid Italian, Nos. 7 to10.....₱ lb 23¢
Pullman:
Wire Sash Cord.....10%
Sash Cord Attachments, per 100..$2.00
Samson, Nos. 8 to 12:
Braided, ₱ lb., Drab Cotton, 55¢; Italian Hemp, 40¢@50¢; Linen, 65¢; White Cotton, 50¢; Spot Cord.....50¢
Massachusetts, White...₱ lb 40¢
Massachusetts, Drab...₱ lb 45¢
Phoenix, White, Nos 8 to 12....27¢
} 15%
Silver Lake, per lb.:
A, Drab, 55¢; A, White, 50¢; B, Drab, 50¢; B, White, 45¢; Italian Hemp, 55¢; Linen....67½¢

Wire, Picture—

Full Length.....90@—%
Short Length.....90&20@—%
Hendryx Standard Wire Picture Cord 90&10%
Turner & Stanton Co. Wire Picture Cord .....90&10%

Cradles—

Grain 50%

Crayons—

White Round Crayons, Cases, 100 gro., $8.00, $8.50, $9.00 and $10.00 according to grade.
Zelnicker's Lumber: ₱ gro.
White and Purple, Indelible....$7.50
Blue, Red, Green, Yellow and Terra Cotta, $6.50; Black.....$4.50
Giant Lumber, 5¼ in. x 15-16 in. round, all colors, $12.00; Indelibles, $14.00; Blacks.....$10.00
Genuine Soapstone, Metal Workers', 5 in. x ¼ in. Round, $2.00; 5 in. x ¼ in. Square, $1.50; 5 x ⅛ x 3-16, $1.75; 5 x 1¼ x 3-16.....$2.50
Suremark, Black, $2.25; Blue, Red and Yellow.....$2.50

Cutlery, Table—

International Silver Company:
No. 12 M'd'm Knives, 1847.₱ doz. $3.50
Star, Eagle, Rogers & Hamilton and Anchor.....₱ doz. $3.00
Wm. Rogers & Son.....₱ doz. $2.50

Cutters— Glass—

H. H. Mayhew Co.....40&5%

Meat and Food—

Enterprise:

Nos..	5	10	12	22	32
Each	$1.75	$2.50	$2.25	$4	$5

25@25&7½%
No. 202, $1.50.....40&7½%
P., S. & W. Co.:
Ideal .....40@40&5%
Hales .....60&5%
Little Giant.....₱ doz. 40@50%
Nos.. 305 310 312 320 322
$35.00 $48.00 $44.00 $72.00 $68.00
New Triumph No. 605, ₱ doz. $24.00,
Russwin Food, No. 1, $24.00; No. 2, $27.00; 3, $42.00.....45&10&10%
$15.00 $18.00

Slaw and Kraut—

Henry Disston & Sons:
Slaw and Kraut Cutters.....35%
Corn Graters.....30%
J. M. Mast Mfg. Co.:
Slaw Cutters, 1 Knife....₱ doz. $3.00
Combined Slaw Cutter and Corn Grater .....₱ doz. $4.00

Tobacco—

Enterprise .....25@30%

Diggers, Post Hole, &c—

Disston's:
Rapid, ₱ doz., $24.00.....25%
Samson, ₱ doz., $34.00.....25%
Iwan's Pat. Post Hole and Well Auger 40%
Vaughan Pattern Post Hole Augers, 4 to 9 in., ₱ doz.....$6.25
Perfection Post Hole Diggers, ₱ doz. $8.25
Split Handle Post Hole Diggers, ₱ doz.. $7.25
Hercules Pattern, ₱ doz.....$8.75
Kohler's, ₱ doz., Universal, $14.00; Little Giant, $12.00; Genuine Hercules, $10.00; Invincible, $9.00; Rival, $8.50; Pioneer.....$7.50
Never-Break Crucible Steel Post Hole Diggers 60%

Dressers Emery Wheel—

Sterling Emery Wheel Dressers.....35%
Sterling Wheel Dresser Cutters.....35%

Drills and Drill Stocks—

Blacksmith's Common Drilling Machines .....$1.50@1.75
Breast, Millers Falls.....15&10%
Breast, P., S. & W.....30&10%
C. & C. Ratchet.....25%
Reversible Ratchet Die Stocks....25%
Forbes Die Stocks.....5%
Goodell Automatic Drills.50&10&60&10%
Millers Falls Automatic Drills, Graves', per doz., Nos. 1, $4.86; 2, $8.16.
Millers Falls Automatic Drills,33⅓&10%
Noyes Repair Shop Drill No. 10....20%
Ratchet, Parker's.....40%
Ratchet, Weston's, Styles A and B.50%
Ratchet, Weston's, Styles C, D and F 45%
Ratchet, Weston's, Style H Improved 45%
Ratchet, No. 012.....50%
Ratchet, Celebrated.....50%
Ratchet, Whitney's, P., S. & W..50%
Star Drills.....60
Star Pipe Drills.....50&10%
Sebco Extension Drills.....40&10&5%
Star Drill Holders.....50&10&10%
Star Drill Points.....50&10&10%

Twist Drills—

Bit Stock.....65&5@70%
Taper and Straight Shank, 60&5@65%

Drivers, Screw—

Buck Bros.' Screw Driver Bits.....30%
Disston's Screw Drivers, Handles and Ferrules 70%
Elmore Tool Mfg. Co.:
Elmore 60%
Hartford 66⅔%
Indestructible .....55&7%
Standard Neverturn.....66⅔%
Star .....75&5%
Screw Driver Bits.....25%
Fray's Hol. H'dle Sets, No. 3, $12..50%
Ford's Brace Screw Drivers....40&10%
Gay's Double Action Ratchet.....35%
Goodell's Auto.....65@65&10%
Mayhew's Black Handle.....45%
Mayhew's Monarch.....45%
Millers Falls, ₱ doz., Nos. 11, $9.95; 12, $13.73; 20, $8.17; 21, $8.46; 41, $13.43; 42, $17.21.
Swan's:
Nos. 7565 to 7568, 60%; No, 7540 .....40&10%

Eave Trough, Galvanized—

All territories.
Galvanized Steel...80&10&10@—%
Copper .....50&10@—%
Terms.—2% for cash. Factory shipments generally delivered.
See also Conductor Pipe and Elbows.

Elbows and Shoes—

Factory shipments, all territories:
Galv. Steel, Galv. C. I. and Copper.
Sizes 2, 3, 4.....80%
Sizes 1½, 2½, 3½, 5, 6...60&10%
No. 26.....50%
No. 24.....25%
Copper Elbows.....50%

Emery, Turkish—

	4 to 46:	5 to 220:	Flour.
Kegs .....lb.	5 ¢	5½¢	5½¢
½ Kegs.....lb.	5½¢	5¾¢	5¾¢
¼ Kegs.....lb.	5½¢	6 ¢	6 ¢
10-lb. cans, 10 in case....6½¢	7 ¢	6 ¢	
10-lb. cans, less than 10.....10 ¢	10 ¢	8 ¢	
Less quantity..10 ¢	10 ¢	8 ¢	

NOTE.—In lots 1 to 3 tons a discount of 10% is given.

Extensions, Bit—

Ford's Auger Bit Extensions....40&5%

Extinguishers—Fire

Royal Mfg. Co. Fire, ₱ doz., $12.00 .....50%

Fasteners, Blind—

Upson's Patent.....25%
Walling's 50%
Zimmerman's Jap'd and Galv., 65%; Bronze and Plated.....50%

Cord and Weight—

Ives, ₱ gro., $1.08.....35%
Titan, ₱ gro., $0.66.....25%

Corrugated—

Acme Corrugated Fasteners.....70%

Faucets—

Cork Lined.....50&10@60%
Metallic Key, Leather Lined, ..60&10@70%
Red Cedar.....40&5@40&10&5%
Petroleum .....70&10@75%

John Sommer Faucet Co.:
Peerless Tin Key.....40%
Boss Tin Key.....50%
Victor Metal Key.....50&10%
Duplex Metal Key.....60%
Diamond Lock.....40%
I.X.L. Cork Lined.....50%
Reliable Cork Lined.....50&10%
Chicago Cork Lined.....60%
O. K. Cork Lined.....50%
No Brand, Cedar.....50%
Perfection, Cedar.....30%

Self Measuring:
Enterprise, Self Measuring and Pump, ₱ doz., $36.00.....40&10%
Lane's, ₱ doz., $36.00.....40&10%

Files— Domestic—

Best Brands.....70&10@75&10%
Standard Brands.....75&10@80%
Lower Grade....75&10&10@80&10%

Disston's Superfine.....60%
Fitchburg 80%
Heller Bros.....70&10@75&10%
Liveright Bros., Gold Medal.....70%
McCaffrey's American Standard, 60&10&10%
McCaffrey's Swiss Pattern.....45&10%
Simonds 70%

Fixtures, Fire Door—

Richards Mfg. Co.:
Universal, No. 103; Special, No. 104 .....$3.75
Fusible Links, No. 96.....50%
Expansion Bolts, No. 107.....60&10%

Grindstone—

Net Prices:

Inch	*15*	*17*	*19*	*21*
Per doz	*$3.00*	*3.25*	*3.55*	*4.00*

Peck, Stow & Wilcox Co.:

In.	15	17	19	21	24
	$1.00	4.40	4.75	5.50	6.50

.....20%
Reading Hardware Co.....50&10%

Frames— Wood Saw—

White, S'g't Bar, per doz.80@$1.00
Red, S'g't Bar, per doz.$1.00@1.25
Red, Dbl. Brace, per doz.$1.40@1 50

Freezers, Ice Cream—

Qt.	*1*	*2*	*3*	*4*	*6*
Each	*$1.25*	*$1.60*	*$1.90*	*$2.20*	*$2.80*

Fuse— *Per 1000 Feet.*

Hemp $2.75
Cotton 3.20
Waterproof Sgl. Taped..3.65
Waterproof Dbl. Taped..4.40
Waterproof Tpl. Taped..5.15
10&2½%

Gates, Molasses and Oil—

Stebbins' Pattern.....80%

Gauges—

Marking, Mortise, &c..50@50&10%

Chapin-Stephens Co.:
Marking, Mortise, &c.....50&50&10%
Disston's Marking, Mortise, &c.60&10%
Wire, Brown & Sharpe's.....33⅓%
Wire, Morse's.....25%
Wire, P., S. & W. Co.....25%

Gimlets— Single Cut—

Numbered assortments, per gro.
Nail, Metal, No. 1, $2.00; 2, $2.30
Spike, Metal, No. 1, $4.00; 2, $4.30
Nail, Wood Handled, No. 1, $2.50; 2, $2.60
Spike, Wood Handled, No. 1, $4.30; 2, $4.60

Glasses, Level—

Chapin-Stephens Co.....65@65&10%
Disston & Sons.....60&10%

Glue, Liquid Fish—

Bottles or Cans, with Brush, 25&10@50%

Grease, Axle—

Common Grade...gro.$6.00@$6.50
Dixon's Everlasting, 10-lb. pails, ea. 85¢; in boxes, ₱ doz., 1 lb. $1.20; 2 lb.....$2.00
Helmet Hard Oil.....25%

Griddles, Soapstone—

Pike Mfg. Co.....33⅓@33⅓&10%

Grinders—

Pike Mfg. Co.:
Hand and Foot Power, Pyko Nos. 1, 2, 3; Pyko Primo; Pyko Peerless; Pyko Spiral (foot power).33⅓%
Mower Knife and Tool, $5.00..40&10%

Royal Mfg. Co.:
Hand Power, each, Nos. 01, $1.75; 02, $2.25; 1A, $2.50; 1B $3.25.....33⅓%
Foot Power, No. 10, $5.00.....33⅓%
Encased Gears, No. 15, Hand Power, $13.50; Combined Hand and Foot Power, $15.00.....33⅓%
Lawn Mower Grinder, No. 40, $3.75 .....33⅓%
Sickle Grinder, each, No. 20, $5.00 .....33⅓%
Cast or Cut Gears.

Grindstones—

Pike Mfg. Co.:
Improved Family Grindstones, ₱ inch, ₱ doz., $2.00.....33⅓%
Richards Mfg. Co., Eli and Cycle, Ball Bearing, mounted.....40%

Grips, Nipple—

Perfect Nipple Grips.....49&10&2%

Halters and Ties—

Cow Ties.....70&10@—%

Bridgeport Chain Co.:
Triumph Coil and Halters.35&2½@40%
Brown Coil and Halters...45@50&5%
Brown Cow Ties.....50@50&5%
Brown Tie Outs.....70&10@75&5%

Covert Mfg. Co.:
Web .....30&10%
Jute Rope.....55%
Sisal Rope.....45%
Cotton Rope.....55%
Hemp Rope.....45%

Oneida Community:
Am. Coil and Halters.....40@40&5%
Am. Cow Ties.....35&2½@40%
Niagara Coil and Halters...45@50&5%
Niagara Cow Ties.....50%

Hammers—

Handled Hammers—

Heller's Machinists'..65&10@65&10&10%
Heller's Farriers'.....40@40&10%

Peck, Stow & Wilcox Co.:
Crucible Steel.....50%
Farriers' 50%
Riveting 50%
Machinists' 50%
Blacksmiths' 50%

Elmore Shoemakers' Hammers.....75%
Victor Magnetic Tack, ₱ gro....$7.75

Heavy Hammers and Sledges—

3 to 5 lb., 40¢.....80&10&10%
Over 5 lb, 30¢.....80&10&10&10%

Handles—

Agricultural Tool Handles

Axe, Pick, &c...60&10@60&10&10%
Hoe, Rake, &c.....30&5@30&10%
Fork, Shovel, Spade, &c.:
Long Handles.....30&5@30&10%
D Handles.....30&5@30&10%

Cross-Cut Saw Handles—

Atkins' 35%
Disston's Handles and Saw Tabs..45%

Mechanics' Tool Handles—

Auger, assorted...gro.$3.00@$3.50
Brad Awl.....gro.$1.65@$1.75
Chisel Handles, Ass'd, per gro.:
Tanged Firmer, Apple, $2.40@ $2.65; Hickory.....$2.15@2.40
Socket Firming, Apple, $1.75@ $1.95; Hickory.....1.60@1.75
Socket Framing, Hickory, $1.60@$1.75
File, assorted.....gro.$1.25@$1.50
Hammer, Hatchet, &c., 60&10@60&10&5%
Hand Saw, Varnished, doz., 80¢; Not Varnished .....70@75¢
Plane Handles:
Jack, doz., 25¢; Fore, doz..40¢

Chapin-Stephens Co.:
Carving Tool.....30@30&10%
Chisel .....60@60&10%
File and Awl.....60@60&10%
Saw and Plane.....30@30&10%
Screw Driver.....30@30&10%

Millers Falls Adj. and Ratchet Auger Handles .....15&10%
Nicholson Simplicity File Handle.... ₱ gro. $0.85@$1.50

J. L. Osgood:
Indestructible File and Tool, ₱ gro., No. 1, $8.00; No. 2, $8.50; No. 3, $9.00; No. 4, $9.50; No. 5, $10.00.....gro. lots 10%

W. A. Zelnicker Supply Co.:
Hammer, ₱ doz., 12 in., $2.00; 14 in., $2.00; 16 in., $2.30; 18 12., $2.50; 20 in., $2.70; 22 in., $3.00; 24 in., $3.30; 26 in., $3.50; 30 in., $3.80.
Sledge, ₱ doz., oval, 30 in., $3.80; octagon, 30 in., $3.80; oval, 36 in., $4.00; octagon, 36 in., $4.00.
Axe, ₱ doz., 28 to 34 in., $5.60; 36 in., $5.80.
Adze, ₱ doz., 36 in., $5.80; 36 in., $7.80.
Pick, ₱ doz., R. R., 36 in., $8.00; coal, 34 in., $5.80.
Hatchet, ₱ doz., 12 to 14 in., $2.00.
Extra 5&10% often given.

Hangers—

NOTE.—Barn Door Hangers are generally quoted per pair, without track and Parlor Door Hangers per double set with track, &c.

Chicago Spring Butt Co.:
Friction 25%
Oscillating 25%
Big Twin.....25%

Chisholm & Moore Mfg. Co.:
Baggage Car Door.....50%
Elevator 30%
Railroad 50%

Cronk & Carrier Mfg. Co.:
Loose Axle.....60&10%
Roller Bearing.....70%

Griffin Mfg. Co.:
Solid Axle, No. 10, $12.00..60&10%
Roller Bearing, No. 11, $15.00, 60&10%
Roller Bearing, Ex. Hy., No. 22, $18.00.....60&10%
Bull Dog, $24.00.....70%

Lane Bros. Co.:
Parlor, Ball Bearing, $4.00; Standard, $3.15; No. 105, $2.85; New Model, $2.80; New Champion per set of 4 Hangers, complete with track.....$2.25
Barn Door, Standard.....60&10%
Hinged .....net $6.08
Covered .....60&5%
Special .....70&5%
Trolley Hangers and track..50%

Lawrence Bros.:
Cleveland .....70&7½%
Clipper, No. 75.....60%
Crown .....55&10%
Cyclone, No. 40.....net $6.50
Tandem, No. 50.....net $7.50
New York.....55&10%
Trolley, No. 30, ₱ pair.....$1.25

McKinney Mfg. Co.:
Roller Bearing, Nos. 1 and 2..70%
Anti-Friction 60%
Hinged Hangers, KingCharm,60%

F. E. Myers & Bro. Stayon; O K; O K Adjustable; Sure Grip; Sure Grip Adjustable; Sure Grip Tandem; Sure Grip Tandem Adjustable; Tandem Adjustable 60%

Richards Mfg. Co.:
Hangers, Nos. 47, 48, 147, 247, 60&5%
Pioneer Wood Track, No. 3..$2.25
Roller B'r'g St'l Track No. 12.$2.20
Roller B'r'g St'l Track No. 13,$2.50
Roller B'r'g, Nos. 39, 41, 43. 70&7½%
Hero, Adj. Track No. 19..50&10%
Adjustable Track Tandem Trolley Track No. 16.....50&10%
Seal, Steel Track No. 8.....$2.25
Auto Adj. Track No. 22..50&5%
Trolley B, D, No. 17, $1.25; F. D. No. 120, $2.25; No. 121, $2.45; No. 150.....$2.50
Safety Underwriters F. D. No. 101 .....50%
Tandem No. 41..2½ and 3 60&10%
Palace, Adjustable Track No. 132 .....50&5%
Royal, Adjustable Track No. 122 .....50&10%
Ives' Wood Track No. 1.....$2.25
Trolley B, D, No. 20.....50&10%
Trolley B. D. No. 24, $1.30; No. 27, $1.40; No. 28.....$1.60
Roller Bearings, Nos. 37, 38, 39, 41, 43, 44, Sizes 1 and 2.70&7½%
Anti-friction, No. 42; No. 44, sizes 2½ and 3.....60%
Hinged Tandem No. 48....60&5%
Folding Door B. B. Swivel No. 135 .....40%

Extra 5&10% often given.

Hangers— Garment—

Pullman Trouser, ₱ gro., No. 1 $9.00; No. 4, $24.00; No. 5, $16.50; No. 8, Black Enamel, $7.50; No. 10, $21.00; No. 12, $8.50; No. 15, Rods, $9.00; No. 18, Loops.....$10.00
Victor Folding.....₱ gro. $9.60

Joist and Timber—

Lane Bros. Co.....35%

Hasps—

Griffin's Security Hasp.....50&10%
McKinney's Perfect Hasp, ₱ doz..60%

Hatchets—

Regular list, first qual.50&10@60%
Second quality.....60@60&10%

Heaters, Carriage—

Clark, No. 5, $1.25; No. 5B, $1.50; No. 3, $1.75; No. 3D, $2.00; No. 1, $3.00 .....25%
Big Hit Assortment, ₱ case....$13.80
Leader, ₱ case.....$9.00
Clark Coal, doz.....$0.75
A B C Coal, doz.....$0.60
Sadiron Coal, box 50 pieces.....$0.75

Hinges—

Blind and Shutter Hinges

Surface Gravity Locking Blind: Doz. Sets with Fastenings, No. 1, $0.75; No. 3, $1.40; No. 5, $2.85.

North's Automatic Blind Fixtures, No. 2, for Wood, $9.00; No. 3, for Brick, $11.50.....10%
Charles Parker Co.....70@75%
Parker Wire Goods Co.
Hale & Benjamin Automatic Blind Hinges 20%
Hale's Blind Awning Hinges, No. 110, for wood, $9.00; No. 111, for brick, $9.00.....20%

Reading's Gravity.....50&10%
Stanley's Steel Gravity Butt Hinges, No. 1647½, ₱ doz. sets, without screws, $1.00; with screws, $1.30.
Wrightsville Hardware Co.:
O. S., Lull & Porter.....75&5
Acme, Lull & Porter.....75
Queen City Reversible.....75
Shepard's Noiseless, Nos. 60, 65, 55 .....75&5
Niagara, Gravity Locking, Nos. 1, 3 & 5.....75&5
Clark's O. P., No. 1.....75&10
Clark's O. P., Nos. 3 and 5....75&5
Tip Pat'n, No. 1.....75&10
Clark's No. 3.....75&5
Buffalo Gravity Locking, Nos. 1, 3 & 5.....70&10&5
Shepard's Double Locking.....75
Champion Gravity Locking.....75&5
Pioneer .....75&10
Empire 65%
W. H. Co.'s Mortise Gravity Locking, No. 2.....60&10%

Gate Hinges—

Western:
With Latch..... doz. $1.75
Without Latch.....doz..$1.15

Wrightsville Hardware Co.:
Shepard's or Clark's Hinges and Latches, Hinges only or Latches only, Nos. 1, 2 or 3.....70%

Miscellaneous—

Griffin Mfg. Co., Fleur de Lis Surface Hinges, ₱ doz. prs.....$1.00

Pivot Hinges—

Bommer Bros. Pivot, Ball Bearing 40%
Lawson Mfg. Co., Matchless..50&10%

Spring Hinges—

Holdback, Cast Iron..$5.25@$5.75
Non-Holdback, C'st Iron$6.50@$6.75

J. Bardsley:
Simplex Spring Hinges.....40%
Bardsley's Patent Checking.33⅓%
Bommer Bros.:
Spring Butt Hinges.....40%
Surface Floor, Ball Bearing 40%
Mortise Floor, Ball Bearing.40%
Lavatory Hinges.....40%
Non-Holdback Screen Door, Nos. 2000 and 900.....40%
Holdback Screen Door, No. 999.....₱ gro, $9.00
Chicago Spring Butt Co.:
Chicago Spring Hinges.....25%
Triplex Spring Hinges.....50%
Chicago (Ball Bearing) Floor.50%
Chicago Engine House.....25%
Lavatory Door Hinges.....50%
Adjustable Screen Door.....60%
Non-Holdback 65%
Lawson Mfg. Co.:
Matchless Spring Hinges..... 30&10&10%
Matchless Jamb Hinges..... 30&10&10%
Lavatory .....50&10%
Surface Floor.....60&10%
Richards Mfg. Co.:
Superior Double Acting Floor Hinges 40%
Shelby Spring Hinge Co.:
Buckeye All Steel Holdback Screen Door.....₱ gr, $9.00
No. 777, Sheet Steel Holdb'k, ₱ gr.....$9.00
No. 888, Non-Holdback, ₱ gro. $9.00
Chief Ball Bearings Floor Hinge 50%
Ball Bearing Door.....40%
Superior Spring Hinge Co.:
Superior Floor Hinges.....40%
Spring Hinges.....40%

Extra 10% often given on most of these Hinges.

Wrought Iron Hinges—

Strap and T Hinges, &c.:
Light Strap Hinges....65%
Heavy Strap Hinges....75%
Light T Hinges.....60%
Heavy T Hinges....40&10%
Extra Hvy. T Hinges.65&10%
Hinge Hasps.....40%
Cor. Heavy Strap.....75%
Cor. Ex. Heavy T...65&10%
Screw Hook and Strap. 6 to 12 in..lb. 3¾¢; 14 to 20 in..lb. 3½¢; 22 to 36 in..lb. 3¼¢
Screw Hook and Eye:
¾ to 1 inch.....lb.5¼@5¾¢
⅝-inch .....lb.6¼@6¾¢
½-inch .....lb.8½@8¾¢
5&10%
Extra, 5@10%

Hitchers, Stall—

Covert Mfg. Co., Stall Hitchers.30&10%

Hods— Coal—

Net, per dozen.

Inch	*15*	*16*	*17*	*18*
Galv., open	*$2.15*	*2.40*	*2.55*	*2.80*
Jap., open	*1.65*	*1.75*	*1.90*	*2.30*
Galv., funnel	*2.60*	*2.90*	*3.10*	*3.35*
Jap., funnel	*2.00*	*2.15*	*2.40*	*2.60*

Masons' Etc.

Cleveland Wire Spring Co.:
Steel Brick, No. 162.....each $1.05
Steel Mortar, No. 158.....each $1.35

Hoes— Eye—

Scovil and Oval Pattern. 60&10@60&10&10%
Grub, list Feb. 23, 1899. 70&10@70&10&10%
D. & H. Scovil.....27½%

Handled—

Cronk's Weeding, No. 1, $2.00; No. 2, $2.50
Star Double Bit.....$2.50

Holders— Bit—

Angular, ℔ doz. $21.00.....45&10%

Broom—

Fullman Broom, ℔ gro.....$9.00

Door—

Hardsley's, Iron, 40%; Bronze.....20%
Empire 50%
Fullman 25%
Richards Mfg. Co.: No. 117, Ever-ready, 40%; Nos. 118, 119, Sure Grip 50%
Superior 40%

File and Tool—

Nicholson File Holders and File Handles .....33⅓&40%

Fruit Jar—

Triumph Fruit Jar Holder, ℔ doz. $2.00

Nipple—

Curtis Nipple Holders.....5%

Trace and Rein—

Fernald Double Trace Holder, ℔ doz. pairs $1.25
Dash Rein Holder, ℔ doz.....$1.25

Hones—Razor—

Pike Mfg. Co., Belgian and Swaty, 50%; German.....33⅓&%

Hooks—Cast—

Bird Cage, Reading.....50%
Clothes Line, Reading List.....50&5%
Coat and Hat Iron, Reading.....50%
Coat and Hat, Bronze Metal, Reading .....33⅓&%
Coat and Hat, Wrightsville.....60&5%
Harness, Reading List.....50%

Wire—

Belt, Nos. 1 to 15...80&5@80&10%
Wire C. & H. Hooks..80@80&10%
Parker Wire Goods Co., King..75&10%
Wire Goods Co.:
Acme, 60&10%; Chief, 75@75&10%; Crown, 75&10@80%; Czar, 70%; Capitol 80%; Czar Harness, 50&10%; Ceiling, 75&10@80%.

Miscellaneous—

Hooks, Bench, see *Stops, Bench.*
Rush, Light, doz., $6.20; Medium, $6.75; Heavy, $7.65
Grass, boat, all sizes, per doz., $2.75@$3.00
Grass, common grades, all sizes, per doz.....$1.25@$1.50
Hooks and Eyes:
Brass .....60@60&10%
Malleable Iron.....70@70&10%
Covert Mfg. Co. Gate and Scuttle Hooks 25%
Turner & Stanton Co. Cup and Shoulder .....85&10%
Bench Hooks—See Bench Stops.
Corn Hooks—See Knives, Corn.

Hose, Rubber—

Garden Hose, ¾-inch:
Competition .....ft. 6@6½¢
3-ply Guaranteed.....ft. 8@8½¢
4-ply Guaranteed....ft. 9½@10¢
Cotton Garden, ¾-in., coupled:
Low Grade.....ft. 8@ 9¢
Fair Quality.....ft. 10@11¢

Irons— Sad—

From ¼ to 10.....lb. 3@3½¢
Mrs. Potts', cents per set:

	Nos. 50	55	60	65
Jap'd Caps	.86	93	96	93
Tin'd Caps	.91	88	1.01	98

Bar and Corner—

Richards Mfg. Co., Bar, 60&10%; Corner 60%

Jacks, Wagons—

Covert Mfg. Co.:
Auto Screw.....30&10%; Steel, 50%
Lane's Steel.....30&5%
Richards' Tiger Steel, No. 130...50&10%

Ladder—

Richards Mfg. Co., Ladder Jacks..50%

Jointers—

Pike Mfg. Co., Saw Jointers, $7.00..40%

Knives—

Adjustable Auto Body—

L. & I. J. White Co.....25%

Butcher, Kitchen, &c.—

Foster Bros.' Butcher, &c.....30%
L. & I. J. White Co. Butcher Kitchen Knives.....30%

Corn—

Columbian Cutlery Co., Wilcut Brand Knives and Hooks.....60%

Drawing—

Standard List.....60@—%
C. E. Jennings & Co., Nos. 45, 46, 25&7½%
Jennings & Griffin, Nos. 41, 42, 66⅔&7½%
Swan's .....66⅔&@70%
L. & I. J. White.....20&5@25%

Hay and Straw—

Serrated Edge, per doz. $5.00@5.50
Iwan's Sickle Edge.....℔ doz. $9.00
Iwan's Serrated.....℔ doz. $9.50

Miscellaneous—

Farriers' .....doz. $2.40@$2.80

Knobs—

Base, 2½-inch, Birch or Maple, Rubber Tip.....gro. $1.25@1.40
Door, Mineral.....doz. 65@70¢
Door, Por. Jap'd.....doz. 70@75¢
Door, Por. Nickel..doz. $2.05@2.15
Bardsley's Wood Door and Shutters.10%

Ladders, Store, &c.—

Lane's Store.....25%
Myers' Noiseless Store Ladders.....50%
Richards Mfg. Co.:
Improved Noiseless, No. 112.....50%
Climax Shelf, No. 113.....50%
Trolley, No. 109.....50%

Ladles, Melting—

L. & G. Mfg. Co.'s list, Melting and Plumbers' 25%
P., S. & W.....40&10%
Reading .....50&10%

Lamps,—

Hammer's M. I. Hand.....45%

Lanterns—Tubular—

Regular, No. 0....doz. $4.00@4.50
Side Lift, No. 0...doz. $4.25@4.75
Hinge Globe, No. 0. doz. $4.25@4.75
Other Styles.....40&5%

Bull's Eye Police—

3-inch .....$3.75@4.00

Latches— Thumb—

Roggin's Latches, Jap'd, with Screws .....doz. 40¢

Door—

Cronk & Carrier Mfg. Co., No. 101, ℔ doz. $2.00
Richards' Bull Dog, Heavy, No. 125 .....50&5%
Richards' Trump, No. 127.....$1.50

Leaders, Cattle—

Small.....doz. 45¢; large, 55¢
Covert Mfg. Co.: Cotton, 55%; Hemp, 45%; Jute, 55%; Sisal, 45%.

Lifters, Transom—

Reading, Iron, 50&5%; Bronze Metal 33⅓%
R. & E.....10%

Lines—

Wire Clothes, Nos.	*18*	*19*	*20*
100 feet	*$2.30*	*1.95*	*1.75*
75 feet	*$1.95*	*1.65*	*1.50*

Chalk Lines, Cotton, ½-lb. Balls, per lb.....25@30¢
Mason Lines, Linen, ½-lb. Balls, per lb.....47¢
Samson Cordage Works:
Solid Braided Chalk, Nos. 0 to 3..40%
Solid Braided Masons'.....30%
Silver Lake Braided Chalk, No. 0, $6.00; No. 1, $6.50; No. 2, $7.00; No. 3, $7.50.....℔ gr. 30%
Masons' Lines, Shade Cord, &c.:
White Cotton, No. 3½, $1.50; No. 4, $2.00; No. 4½, $2.50; Colors, No. 3½, $1.75; No. 4, $2.25; No. 4½, $2.75; Linen, No. 3½, $2.50; No. 4, $3.50; No. 4½, $4.50.....30%
Tent and Awning Lines: No. 5, White Cotton, $7.50; Drab Cotton, $8.50 .....20%
Clothes Lines, White Cotton: 50 ft., $2.75; 60 ft., $3.25; 70 ft., $3.75; 75 ft., $4.00; 80 ft., $4.25; 90 ft., $4.75; 100 ft., $5.25.....30%
Turner & Stanton Co.:
Solid Braided Chalk, Masons' and Awning Lines.....40%
Clothes Lines, White Cotton....40%
Shade Cord, Cotton or Linen....30%

Locks— Cabinet—

Cabinet Locks....33⅓@33⅓&@5%

Door Locks, Latches, &c.—

NOTE.—Net Prices are very often made on these goods.
Reading Hardware Co.....33⅓
R. & E. Mfg. Co.....10%

Padlocks—

R. & E. Mfg. Co. Wrought Steel and Brass .....75&10%

Sash, &c.—

Ives' Patent:
Crescent 25%
Automatic Gravity Metal Sash, ℔ gro., $149.58.....25%
Window Ventilating.....25%
Pullman Patent Ventilating Lock..25%
Reading Sash Locks, Iron.....50%
Reading Sash Locks, Bronze Metal, 33⅓%

Machines—Boring—

Com. Upr't, without Augers, $2.00@2.25
Com. Angl'r, without Augers, $2.25@2.50
Ford Auger Bit Co.....$22.00
Jennings', Nos. 1 and 4.....25&7½%
Millers' Falls.....5.75
Snell's, Upright, $2.65; Angular, $2.90
Swan's Improved.....40&10%

Corking—

Reisinger Invincible Hand Power... ℔ doz. $48.00

Forming, Bending, Etc—

Royal Forming, Bending, Crimping and Fluting, Hand Power, each, $20.00.....40%

Hoisting—

Moore's Anti-Friction Chain Hoist.30%
Moore's Hand Hoist, with Lock Brake 20%
Moore's Cyclone High Speed Chain Hoist 25%

Ice Cutting—

Chandler's 12½%

Mallets—

Hickory .....45&5@50%
Lignumvitæ .....45&5@50%
Tinners' Hickory and Applewood .....doz. 45&5@50%

Mats, Door—

Acme Flexible Steel.....50%
Elastic Steel (W. G. Co.), new list.50%
Everlasting Flexible Steel.....40%

Mills, Coffee, &c.—

Enterprise Mfg. Co.:
Coffee .....20@25%
Bone, Shell and Corn.....25&10%
Parker's Columbia and Victoria..33⅓%
Parker's Box and Side.....50&10%
Swift, Lane Bros. Co.....30%

Motors, Water—

Pike Mfg. Co., Tool and Knife Grinding 33⅓%

Mowers, Lawn—

NOTE.—Net prices are generally quoted
Cheapest, 10-in., $1.80; advance 10¢ for each size.
Cheap, 10-in., $2.50; advance, 10¢ for each size.
Better Grade, 10-in., $3.25; advance 25¢ for each size.

	12	*14*	*16*	*18-in.*
High Grade	*$4.50*	*4.75*	*5.00*	*5.25*

Continental, High and Low Wheel, 50&10%
Great American.....66⅔%
Great American Ball Bearing....66⅔%
Quaker City.....66⅔%
Pennsylvania, High and Low Wheel, 50&10%
Pennsylvania, Jr., Ball Bearing 50&5%
Pennsylvania Golf, 6 Knives, Low Wheel, 33⅓%; High Wheel.....45%
Pennsylvania Golf, Ball Bearing, 7 Knives, High Wheel.....33⅓%
Pennsylvania Horse, 30 and 38 inch, 33⅓&5%
Pennsylvania Pony or Two Man.40&5%
Pennsylvania Grand Horse, 30 and 38 in.....33⅓%

Nails—

Wire Nails and Brads, Miscellaneous .....85&10%
Cut and Wire. See *Trade Report.*
Hungarian, Finishing, Upholsterers', &c. See *Tacks.*

Horse—

Jobbers' Special Brands, per lb. 9¢

Picture—

	1½	2	2½	3 in.
Brass Hd. gro.	.45	.55	.60	.70
Por. Head, gro., all sizes				.80¢

Upholsters—

Brass 30%
Plated .....30&10%

Nuts— *Blank or Tapped.*

Cold Punched:	*Off list.*
Square	*5.00¢*
Hexagon	*5.60¢*
Square, C., T. & R.	*5.40¢*
Hexagon, C., T. & R.	*6.20¢*
Hot Pressed:	*Off list.*
Square	*5.50@5.60¢*
Hexagon	*5.90@6.00¢*

Oakum—

Best .....lb. 6½¢
U. S. Navy.....lb. 6 ¢
Navy .....lb. 5 ¢
Plumbers' Spun Oakum..2¾@3 ¢

Oil—

Pike Mfg. Co., Stonoil.....40%

Oil Tanks—See *Tanks, Oil.*

Oilers—

Steel, Copper Plated.....75&10%
Chase or Paragon:
Brass and Copper.....45&50%
Zinc .....65&10@70%
Railroad .....60&10&10%
American Tube & Stamping Co.:
Spring Bottom Cans.....70@70&10%
Railroad Oilers, &c.....60@60&10%
Hero Fruit Jar Co.:
Spring Bottom Cans.....70@70&10%
Railroad Oilers, etc.....60@60&10%
Malleable, Hammers' Improved, Nos. 11, 12 and 13, 10%; Old Pattern, Nos. 1, 2, 3, 4, 50%.
Maple City Mfg. Co.:
Spring Bottom Cans.....70@70&10%
Railroad Oilers, &c.....60@60&10%

Openers, Can—

Triumph Shear Can Openers, doz..$1.20

Egg—

Hartigan Nickel Plate, ℔ doz., $2.00; Silver Plate, $4.00.

Packing—

Asbestos Packing, Wick and Rope, any quantity.....13¢

Rubber—

(Fair quality goods.)
Sheet, C. I.....11@12¢
Sheet, C. O. S.....11@12¢
Sheet, C. B. S.....12@13¢
Sheet, Pure Gum.....40@45¢
Sheet, Red.....40@50¢
Jenkins' '96, ℔ lb, 80¢.....25%

Miscellaneous—

American Packing....lb. 7@10 ¢
Cotton Packing.....lb. 16@25 ¢
Italian Packing.....lb. 9@10¢
Jute .....lb. 4@4¼¢
Russia Packing.....lb. 9@10¢

Pails, Galvanized—

Net, per dozen.

Quarts..	8	10	12	14	16
Light	*$1.45*	*1.65*	*1.80*	*2.00*	*2.35*
Ex. heavy.	*...*	*$2.65*	*2.85*	*3.00*	*3.35*
Rd. Bottom Fire Pails	*1.95*	*2.10*	*2.30*	*...*	*...*
Well Pails	*1.95*	*2.15*	*2.35*	*...*	*...*

Paint—

Dixon's Silica-Graphite, in 1 gal. pails and 5 gal. kegs, 25%; packages of larger size.....20%

Pans— Dripping—

Standard List.....75&10%

Refrigerator, Galva.—

Inch	*12*	*14*	*16*	*18*
Per doz.	*$2.00*	*2.25*	*2.50*	*2.75*

Paper—Building Paper

Per roll.
Rosin Sized Sheathing: 500 sq. ft. Light weight, 25 lbs. to roll..38¢
Medium weight, 30 lbs. to roll, 45¢
Heavy weight, 40 lbs. to roll..60¢
Black Water Proof Sheathing, 500 sq. ft., light weight, 65¢; medium weight, 95¢; heavy weight, $1.30.
Deafening Felt, 9 and 6 sq. ft. to lb., ton.....$40.00
Red Rope Roofing, 250 sq. ft. per roll.....$1.75

Tarred Paper—

1 ply (roll 400 sq. ft.), ton, carloads, $31.00; less than carloads $32.00
2 ply, (roll 168 sq. ft.), 40 lb..48¢
3 ply (roll 108 sq. ft.), 60 lb..68¢
Slater's Felt (roll 500 sq. ft.), per ton, $35.00; per roll.....70¢

Sand Paper and Cloth—

Flint and Emery.....50&10%
Garnet Paper and Cloth.....25%

Parers—Apple—

Goodell Co.:
Family Bay State.....℔ doz. $15.00
Improved Bay State.....℔ doz. $36.00
New Lightning.....℔ doz. $7.00
Turn Table '98.....℔ doz. $6.00
White Mountain.....℔ doz. $5.00
Bonanza Improved.....each $7.50
Dandy .....each $10.00
New Century.....each $20.00
Ranger .....each $25.00
Rapid Apple Slicer.....each $100.00
Reading Hardware Co.:
Advance .....℔ doz. $4.00
Baldwin .....℔ doz. $4.00
Reading 72.....℔ doz. $3.25
Reading 78.....℔ doz. $6.25

Orange—

Goodell Co., Success.....each $20.00

Potato—

Saratoga .....℔ doz. $7.00
White Mountain.....℔ doz. $6.00

Picks and Mattocks—

List 75%
Cronk's Handled Garden Mattock, ℔ doz., $6.00.....33⅓%

Pins, Escutcheon—

Brass .....50@50&10%
Iron .....60@60&10%

Pipe, Cast Iron Soil—

Eastern Prices:
Standard, 2-6 in......68%
Extra Heavy, 2-6 in.....74%
Fittings, Standard and Heavy .....80¾% } *Extra, 10 & 10&5%*

Pipe, Merchant—

Carloads to Consumers:

	Steel. Blk. %	Iron. Galv. %	Blk. %	Galv. %
⅛ and ¼ in..				
⅜ in.....				
½ in.....	} See Trade Report			
¾ to 6 in....				
7 to 12 in....				

Pipe, Vitrified Sewer—

Carload lots.
Standard Pipe and Fittings, 3 to 24 in., f.o.b. factory:
First class 85%
Second-class 87%

Planes and Plane Irons—

Wood Planes—

Bench, first qual.....30@30&5%
Bench, second qual....40@40&5%
Molding .....25@25&5%
Chapin-Stephens Co.:
Bench, First Quality.....30%
Bench, Second Quality.....40%
Molding and Miscellaneous.....25%
Toy and German.....30%
Union 60%

Iron Planes

Union 60%

Plane Irons—

Wood Bench Plane Irons....25%
Buck Bros.....30%
Chapin-Stephens Co.....25%
Union 50%
L. & I. J. White.....20&5@25%

Planters, Corn, Hand—

Kohler's Eclipse.....℔ doz. $7.50

Plates—

Felloe .....*lb.* 3¾@4¢
Avery Stamping Co.:
Standard Wrot, Steel Felloe Plates in 100 lb kegs, per 100 lb, ⅝-in. to 1¼-in., $4.00 net; 1¼-in. to 2-in., inclusive, $3.75 net.

Steel Pipe Hook—

Never-Break .....75&10%

Pliers and Nippers

Button Pliers.....75&5@75&10%
Gas Burner, per doz., 5 in., $1.25 @$1.30; 6 in., $1.45, $1.50.
Gas pipe.. 7 $2.00, 8 $2.25, 10 $2.75, 12-in. $3.50
Acme Nippers.....50%
Cronk & Carrier Mfg. Co.:
American Button.....80%
Improved Button.....75&10%
Cronk's 60%
No. 89 Linemen's.....50%
Stub's Pattern.....45%
Combination and others.....33⅓%
Elmore Tool Mfg. Co.:
Gas Pliers.....70%
Wire and Cutting Pliers.....75%
Heller's Farriers' Nippers, Pincers and Tools.....40@40&10%
P., S. & W. Tinners' Cutting Nippers 30%
Utica Drop Forge & Tool Co.:
Pliers and Nippers, all kinds....40%

Plumbs and Levels—

Chapin-Stephens Co.:
Plumbs and Levels.....30@30&10%
Chapin's Imp. Brass Cor..40@40&10%
Pocket Levels.....30@30&10%
Extension Sights.....30@30&10%
Machinists' Levels.....40@40&10%
Disston & Sons:
Shafting Levels .....60&10%
Pocket Levels.....60&10%
Plumbs and Levels.....60&10%
Track Level and Gauge.....60&10%

Points, Glaziers'—

Bulk and 1-lb. papers.....*lb.* 10¢
½-lb. papers.....*lb.* 11¢
¼-lb. papers.....*lb.* 12¢

Police Goods—

Manufacturers' Lists...25@25&5%

Polish—Metal, Etc—

Ladd Co.:
Putzade Liquid, ℔ gro., ¼ pts., $12.00; 1 pts., $20.00; 1 qts., $40.00; ℔ doz., ½ gals., $6.35; 1 gals., $12.00.
Prestoline Liquid, No. 1 (½ pt.), ℔ doz., $3.00; No. 2 (1 qu.), $6.00..40%
Prestoline Paste.....40%
George William Hoffman:
U. S. Metal Polish Paste, 3 oz. boxes, ℔ doz. 50¢; ℔ gro. $4.50; ½ lb boxes, ℔ doz. $1.25; 1 lb boxes, ℔ doz. $2.25.
U. S. Liquid, 8 oz. cans, ℔ doz., $1.25.
Barkeepers' Friend Metal Polish, ℔ doz., $1.75.

Stove—

Black Eagle Benzine Paste, 5 lb cans, ℔ lb 10¢
Black Eagle, Liquid, ½ pt. cans.. ℔ doz. 75¢
Black Jack Paste, ¾ lb cans, ℔ gr. $9.00
Black Kid Paste, 5 lb can....each, $0.65
Ladd's Black Beauty Liquid, per 100 tins.....$6.75
Joseph Dixon, ℔ gr. $5.75.....10%
Dixon's Plumbago.....℔ lb 8¢
Fireside .....℔ gr. $2.50
Gem, ℔ gr. $1.50.....10%
Japanese .....℔ gr. $3.50
Jet Black.....℔ gr. $3.50
Peerless Iron Enamel, 10 oz. cans.. ℔ doz. $1.50

Window Polish—

Benj. P. Forbes:
Glasbright, 1 lb cans, each.....75¢
Glasbright, Factory, 10 lb pails, ℔ lb.....25¢

Poppers, Corn—

1 qt. Square..doz.$0.75; gro. $8.75
1 qt. Round..doz.$0.90; gro.$10.00
1½ qt. Square.doz.$1.20; gro.$12.00
2 qt. Square..doz.$1.50; gro..$15.00

Pots, Glue—

Enameled .....30&10%
Tinned .....30&5%

Powder—

Black Sporting:
Kegs (25 lb.)..$5.00@5.50
Half Kegs (12½ lb.), $2.75@3.00
Quarter Kegs (6¼ lb.), $1.50@1.65
Canisters, pounds... .25
Canisters, ½ pounds. .15
Canisters, ¼ pounds. .12
} *Discount to the trade, 10%.*
NOTE.—Prices vary according to territory.

Presses—

Enterprise Mfg. Co., Fruit, Wine and Jelly.....20@25%
Lard Presses and Sausage Stuffers .....25@25&7½%

Seal Presses—

Morrill's No. 1, ℔ doz., $20.00.....50%
Morrill's Pocket, $20.00.....50%

Pullers, Nail, Etc.—

Elmore Tool Mfg. Co.:
Drop Forged Tack Claws....50&10%
Standard Tack Claws, No. 10 33⅓&7½%
Nail Pullers.....40%
Miller's Falls, No. 3, ℔ doz., $12.00.. 33⅓&10%
Morrill's No. 1, Nail Puller, ℔ doz. $20.00 .....50%
Pearson Spike Puller, each, $15.00..25%
Parrot Tack and Stub Pullers, ℔ doz. $1.20
The Scranton Co, Case Lots:
No. 2B (large).....$5.50
No. 3B (small).....$5.00

Pulleys, Single Wheel—

Inch	1½	1¾	2	3
Awning or Tackle, doz.	$0.30	.45	.60	1.05
Hay Fork, Swivel or Solid Eye, doz., ¼ in., $1.25; 5 in., $1.55				
Inch	2	2¼	2½	
Hot House, doz.	$0.65	.85	1.20	
Inch	1¼	1½	1¾	2
Screw, doz.	$0.16	.19	.23	.30
Inch	1¾	2	2¼	2½
Side, doz.	$0.25	.40	.55	.60
Inch	1½	1¾	2	2½

Sash Pulleys—

Common Frame; Square or Round End, per doz., 1¾ and 2 in......17@20¢
Auger Mortise, no Face Plate, per doz., 1¾ and 2 in. .20@21¢
Acme, No. 35..1¾ in., 19¢; 2 in., 20½¢
American Pulley Co.:
Wrought Steel American Plain Axle .....50&10%
Wrought Steel, Eagle, ℔ doz., 1¾ in., 17¢; 2 in., 20¢; 2¼ in. .....27¢
Top Notch, Electrically Welded, Nos. 3 and 4, ℔ doz.....19¢
Common Sense.....℔ doz. 20¢
Merit, ℔ doz., 2¼ in.....37¢
Fox-All-Steel, Nos. 3 and 7, 2 in..... ℔ doz. 50%
Grand Rapids All Steel Noiseless..50%
Niagara, No. 25, 1¾ in., 19¢; 2 in. .....20½¢
No. 26 Troy..1¾ in., 14½¢; 2 in., 16½¢
Star, No. 26....1¾ in., 19¢; 2 in., 20½¢
Tackle Blocks—See Blocks.

Pumps—

Cistern 60%
Pitcher Spout.....75¢10&5@80
Wood Pumps, Tubing, &c....50%
Barnes Mfg. Co.:
Dbl. Acting (low list).....50%
Pitcher Spout.....80%
Daisy Spray Pump.....℔ doz. $6.50
Goulds Mfg. Co.:
Double-Acting Thresher Tank..$5.00
Diaphragm No. 3, Side Suction.$14.50
Empire, Advance, Seneca, D. A., Shallow and Deep Well (low list) 50%
Spraying and Whitewashing.....$2.45
F. E. Myers & Bros. (low lists):
Double Acting Force and Lift; Cistern and Well; House; Windmill; Ratchet Handle; Pump Stands; Hydro-Pneumatic; Bulldozer Power; Spray; Ashland Force and Lift.....50%
Thresher Tank—Myers and Faultless Low Down Tank.....$5.90
Century Low Down Tank, No. 470 .....$5.25
Century Low Down Ratchet Handle Tank, No. R470.....$5.50

Pump Attachments—

Chicago Hdw. & Fdy. Pump Spout Attachments, each.....$0.27

Pump Leathers—

Plunger and Valve Leathers—Per gro.:

No.....	1	2	3	4
	$5.00	6.00	7.00	8.00
Cup Leathers—Per 100:				
Inch....	2½	3	3½	4
	$5.00	7.00	9.00	12.00

} *50@50&5%*

Punches—

Saddlers' or Drive, good, doz.60@75¢
Spring, single tube, good quality *$1.75*
Revolving (4 tubes)....doz.$3.50
Bemis & Call Co.'s Cast St'l Drive.50%
Elmore Tool Mfg. Co.:
Machinists' Center.....40%
Tinners': Solid, 50%; Prick.....50%
Morrill's Nos. 1AA, 1A, 1B, 1C, 1D, $15.00.....50%
Hercules, 1 die, each $5.00.....50%
Niagara Hollow Punches.....40%
Niagara Solid Punches.....55%
Tinners' Hollow, P., S. & W. Co..25%
Tinners' Solid, P., S. & W. Co., ℔ doz., $1.44.....40&10%

Rail—Barn Door, &c.—

Sliding Door, Painted Iron, 2½@2¾¢
Sliding Door, Wrought Brass, 1⅛ in., lb., 36¢.....30%
Cronk's:
Double Braced Steel Rail..℔ ft. 2¾¢
O. N. T. Rail.....2½¢
Griffin's:
xxx, ℔ 100 ft., 1 x 3-16 in., $3.25; 1¼ x 3-16 in., $3.75.
Hinged Hanger, ℔ 100 ft., 1 x 3-16 in., $3.50; 1¼ x 3-16 in., $4.00.
Lane's:
Hinged Track, ℔ 100 ft.....$3.45
O. N. T., ℔ 100 ft., 1 in. $3.12½; 1¼ in., $3.45; 1½ in., $4.00.
Standard, 1¼ in.....℔ 100 ft. $4.00
Lawrence Bros.:
1 x 3-16 in., ℔ 100 ft., $7.50; 1¼ x 3-16 in., $8.75.....55&7½%
Trolley, No. 301, ℔ ft.....3¢
McKinney's:
Hinged Hanger Track, ℔ ft., 11¢. 60&5%
1 x 3-16 Track.....55&7½%
Myers' Stayon Track.....60&10%
Richards Mfg. Co.:
Common, 1 x 3-16 in., $3.00; 1¼ x 3-16, $3.25; 1¼ x 3-16, $3.50.
Special Hinged Hanger Rail..60&10%
Lag Screw Rail, No. 65.....50%
Gauge Trolley Track, ℔ ft., No. 31, 9¢; No. 32, 14¢; No. 33, 20¢.
No. 50.....60&10%
Nos. 61, $3.00; 62, $3.25; 63, $3.50; 64, $4.00; 45, $3.25; 46, $3.50; 49, No. 1, $3.25; 49, No. 2, $3.50.

Rakes—

Cronk's:
Steel Garden: Champion, ℔ doz., 12-tooth, $3.75; 14-tooth, $4.00; 16-tooth, $4.25; Ideal, ℔ doz., 12-tooth, $3.00; 14-tooth, $3.30; 16-tooth, $3.60.
Victor, 12-tooth, $2.25; 14-tooth, $2.50; 16-tooth, $2.75.
Queen City Lawn, ℔ doz., 20 teeth, $2.35; 24, $2.50.....net
Anticlog Lawn, ℔ doz.....$3.50
Malleable Garden.....70&10%
Ideal Steel Garden, ℔ doz., 12 teeth, $15.00; 14, $16.00; 16, $18.00.....80%
Kohler's:
Jumbo Lawn, 36-tooth....℔ doz. $5.00
Lawn Queen, 20-tooth....℔ doz. $2.65
Lawn Queen, 24-tooth....℔ doz. $2.75
Paragon, 20-tooth.....℔ doz. $2.40
Paragon, 24-tooth.....℔ doz. $2.50
Steel Garden, 14-tooth....℔ doz. $2.40
Malleable Garden, 14-tooth, ℔ doz. $1.75@2.00

Rasps, Horse—

Disston's 75%
Heller Bros.'.....70&5@70&10&5%
Liveright Bros.' Gold Medal.....70%
McCaffrey's American Standard..... 60&10&5%
New Nicholson.....70&10@75%
See also Files.

Razors—

W. H. Compton Shear Co.....30%

Reels, Fishing—

Hendryx:
M 6, Q 6, A 6, B 6, M 9¼, M 16, Q 16, A 16, B 16, 1008, Rubber Populo, Nickeled Populo.....20%
Aluminum, German Silv., Bronze.25%
1240 N, 124 N.....20%
3004 N, 06 N, 6 RM, G 9.....25%
4 N, 6 PN, 24 N, 26 PN.....20%
2904 P., 33⅓%; 2904 PN., 33⅓%; 0924 N., 33⅓%; 92084 N., 33⅓%; 002904 PN., 33⅓%; 802 N., 33⅓%
986 PN, 2904 N, 974 PN.....25%
5009 PN, 5009 N.....20%
Competitor, 102 P, 102 PN, 202 P, 202 PN, 102 PR, 202 PR.....20%
304 P, 304 PN, 00304 P, 00304 PN.33⅓%

Registers—

Japanned, Electroplated and Bronzed 70%
White Porcelain Enamel..50&10%
Solid Brass or Bronze Metal..40%

Revolvers—

Single Action.....*95¢@$1.00*
Double Action, except 44 cal.$2.00
Double Action, 44 caliber...$2.00
Automatic *$4.00*
Hammerless *$4.50*

Riddles, Hardware Grade

16 in......*per doz.$2.50@$2.75*
17 in......*per doz.$2.75@$3.00*
18 in......*per doz.$3.00@$3.25*

Rings and Ringers—

Bull Rings—

	1	1¼	3 inch.
Steel	$0.70	0.75	0.80 doz.
Copper	$1.10	1.25	1.35 doz.

Hog Rings and Ringers—

Hill's Rings, per gro. boxes, $4.60@$4.75; per doz. boxes 40@45¢
Hill's Ringers, Gray Iron, doz.. 55@65¢
Hill's Ringers, Malleable Iron, doz.85@95¢
Blair's Rings..per gro.$5.50@$6.00
Blair's Ringers..per doz.65@70¢

Rivets—

Copper Rivets and Burrs, 50@50&10%
Tinners' and Miscellaneous Rivets 80%
Structural, base.....2.15¢
Boiler, base.....2.25¢

Bifurcated and Tubular—

Assorted in Pasteboard Boxes.
Bifurcated, per dozen boxes, 50 count, 40@45¢; 100 count, 50@ 65¢.
Tubular, per doz. boxes, 50 count, 60@68¢; 100 count, $1.12@$1.26.

Rollers—

Cronk's Stay, No. 50.....$1.00
Cronk's Brinkerhoff No. 55, $0.60; No. 56, $0.75; No. 60.....$0.75
Lane's Stay.....40%
Myers' Stay.....60%
Richards' Stay:
Handy Adj. and Reversible No. 53.75¢
O. K. Adj. and Reversible No. 58.50¢
Lag Screw, Nos. 55 and 57.....50%
Underwriters', Nos. 59, 60.....50%
Favorite, No. 54.....60%

Rope—

Manila, 7-16 in. diam and larger:
Highest Grade.....*lb.*8@8¼¢
Lower Grades.....*lb.*7¼@7¾¢
Sisal, 7-16 in. diam. and larger:
Highest Grade.....*lb.*7½@7¾¢
*Commercial Grade.lb.*6¼@6½¢
Sisal, Hay, Hide and Bale Ropes, Medium and Coarse:
Pure .....*lb.*7¾@8¢
Sisal, Tarred, Medium Lath Yarn:
Pure .....*lb.*6¾@7¢
Cotton Rope:
Best, ¼-in. and larger..18@22¢
Medium, ¼-in. and larger.16¼¢
Common, ¼-in. and larger...8¢
In coils, ½¢ advance.
Jute Rope:
Rope, No. 1, ¼-in. and up, lb. .....5@5½¢

Wire Rope—

Galvanized .....*47½&2½%*
Plain .....*55&2½%*

Ropes, Hammock—

Covert Mfg. Co.:
Jute, $0.75@$0.85; Sisal....$0.82@$0.90

Rules

Boxwood .....60&65%
Ivory .....25&65%

Chapin-Stephens Co.:
Boxwood 60%
Flexifold 40%
Ivory .....25@25&10%
Miscellaneous .....50@50&10%
Stephens' Combination.....55%
Stationers' .....50@50&10%

Keuffel & Esser Co.:
Folding, Wood.....35&10%
Folding, Steel.....33⅓&10%

Lufkin's Steel.....50&10%
Lufkin's Lumber.....50&10%
Upson Nut Co.:
Upson Nut Co., Boxwood.....60&5%

Saws—

Atkins':
Circular 45%
Band .....50@50&10%
Butcher Saws.....50%
Cross Cuts.....35%
One-Man Cross Cut.....40%
Narrow Cross Cut.....50%
Hand, Rip and Panel.....35&5%
Miter Box and Compass.....40%
Mulay, Mill and Drag.....45%
Wood Saws.....40&10%

Chapin-Stephens Co.:
Turning Saws and Frames.30@30&10%

Disston's:
Circular, Solid and Ins'ted Tooth.50%
Band, 2 to 18 in. wide.....60%
Band, ¾ to 1¾.....60%
Crosscuts 45%
Narrow Crosscuts.....50%
Mulay, Mill and Drag.....40%
Framed Woodsaws.....25%
Woodsaw Blades.....25%
Woodsaw Rods, Tinned.....15%
Hand Saws, Nos. 12, 99, 9, 16, d100, D8, 120, 76, 77, 6.....25%
Hand Saws, Nos. 7, 107, 107½, 3, 1, 0, 00, Combination.....30%
Compass, Key Hole, &c.....25%
Hand Ice Saws.....45%
Butcher Saws and Blades.....30%

C. E. Jennings & Co.'s:
Back Saws.....16⅔%
Butcher Saws.....25&7½%
Compass and Key Hole Saws, 33⅓&7½%
Framed Wood Saws.....25&7½%
Hand Saws.....12½%
Wood Saw Blades.....33⅓&7½%

Millers Falls:
Butcher Saws.....15&10%
Star Saw Blades.....15&10%

Massachusetts Saw Works:
Victor Kitchen Saws.....40&10&60%
Butcher Saws Blades.....35@40%
Peace & Richardson's Hand Saws.30%

Simonds':
Circular Saws.....45%
Crescent Ground Cross Cut Saws.30%
One-Man Cross Cuts.....40&10%
Gang Mill, Mulay and Drag Saws.40%
Band Saws.....50%
Back Saws.....25@25&7½%
Butcher Saws.....35@35&7½%
Hand Saws.....25@25&7½%
Hand Saws, Bay State Brand....45%
Compass, Key Hole, &c..25@25&7½%
Wood Saws.....40&7½%

Wheeler, Madden & Clemson Mfg. Co.'s Cross Cut Saws.....50%
L. & I. J. White Co. Butcher Saws 45%

Hack Saw Blades and Frames—

Atkins' Hack Saw Blades A A A..40%
Disston's:
Concave Blades.....25%
Chromol Blades.....35%
Hack Saw Frames.....30%

Simonds, 35%; Bay State, 40%; Culley 35%

C. E. Jennings & Co.'s:
Hack Saw Frames, Nos. 175, 180.....40&7½%

Hack Saws, Nos. 175, 180, complete, 40&7½%

Goodell's Hack Saw Blades....40&10%
Griffin's Hack Saw Frames..35&5&10%
Griffin's Hack Saw Blades....35&5&10%
Griffin Co. Hack Saw Blades.....50%
Star Hack Saws and Blades....15&10%
Sterling Hack Saw Blades..30&10&5%
Sterling Hack Saw Frames..30&10&10%
Sterling Power Hack Saw Machines, each, No. 1, $25.00; No. 2, $30.00..10%
Victor Hack Saw Blades.....20%
Victor Hack Saw Frames.....40%
Victor Hack Saw Machines, each.$75.00

Scroll—

Barnes, No. 7, $15.....25%
Barnes' Scroll Saw Blades.....40%
Barnes' Velocipede Power Scroll Saw, without boring attachment, $18; with boring attachment, $20.....20%
Lester, complete, $10.00.....15&10%
Rogers, complete, $3.50 and $4.00.. 15&10%

Scales—

Union Platform, Plain.$2.10@2.20
Union Platform, Stpd.$2.20@2.30

Chatillon's:
Eureka 25%
Favorite 40%
Grocers' Trip Scales.....50%
Reading Hardware Co.....50&5%
The Standard Portables.....40%
The Standard R. R. and Wagon .....50&10%

Scrapers—

Chapin-Stephens Co., Box..30@30&10%
Richards Mfg. Co., Foot.....60%

Screws—Bench and Hand

Bench, Iron, doz., 1 in., $2.50@2.75; 1⅛, $3.00@3.25; 1¼, $3.50@3.75
Bench, Wood.....20@20&10%
Hand, Wood....70&10@70&10&10%
Chapin-Stephens Co., Hand..... 70@70&10&2½%

Coach, Lag and Hand Rail—

Lag, Cone Point.....75&10%
Coach, Gimlet Point.....75&5%
Hand Rail.....70&10@75%

Jack Screws—

Standard List.....70&10@75%
Millers Falls.....50&10&10%

Machine—

Cut Tread, Iron, Brass or Bronze:
Flat Head or Round Head, 50@50&10%
Fillister Head.....40@40&10%
Rolled Thread, F. H. or R. H., Iron .....75&10%
F. H. or R. H., Brass, Nos. 8 to 14.....65&10%

Set and Cap—

Set (Iron).....75&10&7½%
Set (Steel), net advance over Iron 25%
Sq. Hd. Cap.....70&10&7½%
Hex. Hd. Cap.....70&10&7½%
Rd. Hd. Cap.....50&7½%
Fillister Hd. Cap.....60&7½%

Wood—

List July 23, 1903.
Flat Head, Iron.....87½&5@..%
Round Head, Iron....85&5@..%
Flat Head, Brass.....80&5@..%
Round Head, Brass..77½&5@..%
Flat Head, Bronze....75&5@..%
Round Head, Bronze.72½&5@..%
Drive Screws.....87½&5@..%

Scythes— Per doz.

Plain Grass, Cutting Edge Polished .....$6.25@$6.50
Clipper, Bronzed Web.$6.50@$6.75
Solid Steel, Web and Backs Polished .....$7.00@$7.25
Bush, Weed and Bramble, Painted .....$6.50@$6.75
Grain, Painted, Cutting Edge Polished .....$8.25@$8.50
Clipper Grain, Bronze Web, $8.50@$8.75

Seeders, Raisin—

Enterprise .....25@30%

Sets— Awl and Tool—

Fray's Hollow Tool Handles, Nos. 1, $12; 2, $16; 3, $12.....50%
Millers Falls Adj. Tool Handles, No. 1, $12; No. 4, $12; No. 5, $18..20&10%

Sets, Nail—

Octagon .....gro. $3.50@3.75
Buck Bros.....27½%
Elmore Tool Mfg. Co.....30%
Mayhew's .....⅌ gro. $9.00
Snell's Corrugated, Cup Pt.....40&10%
Snell's Knurled, Cup Pt.....40&10%
Victor Knurled, Cup Pt....⅌ gro. $7.50

Rivet—

Regular list.....75@75&10%

Saw—

Atkin's:
Criterion 40%
Adjustable 40%
Disston's Star, Monarch and Triumph 30%
Giant Royal Cross Cut.....⅌ doz. $6.00
Morrill's No. 1.....$15.00 (50%)
Nos. 3 and 4, Cross Cut....$20.60 (50%)
No. 5, Mill.....$30.00 (50%)
Nos. 10, 11, 95.....$15.60 (50%)
No. 1 Old Style.....$10.00 (50%)
Special $16.25 (50%)
Royal, Hand.....⅌ doz. $3.50
Seymour Smith & Son's.....65%
Taintor Positive.....⅌ doz. $6.75

Sharpeners, Knife—

Pike Mfg. Co.:
Fast Cut Pocket Knife Hones, ⅌ doz.....$1.50 (50%)
Mounted Kitchen Sand Stone, ⅌ doz.....$1.50 (50%)
Natural Grit Carving Knife Hones, ⅌ doz.....$3.00 (50%)
Quick Cut Emery Carving Knife Hones, ⅌ doz.....$1.50 (50%)
Quick Edge Pocket Knife Hones, ⅌ doz.....$2.50 (50%)

Lawn Mower—

Pike Mfg. Co., 12, 14, 16, 18 and 20 in., doz., $6.00.....33⅓%

Shavers, Beef—

Enterprise Mfg. Co.....25@30%

Shaves, Spoke—

Iron .....doz. $1.25
Wood .....doz. $2.00
Chapin-Stephens Co.....30@30&10%
Millers Falls Co., ⅌ doz., $9.00.15&10%
Seymour Smith & Son's.....50%
L. & I. J. White Co. Adjustable Auto Body.....25%

Shears—

	7	8	9 in.
Cast Iron..			
Best	$16.00	18.00	20.00 gro.
Good	$13.00	15.00	17.00 gro.
Cheap	$5.00	6.00	7.00 gro.

Straight Trimmers, &c.:
Best quality Jap.....70&10&65%
Best Quality Nickel...60&10&65%
Tailors' Shears.....40@40&10%
Acme Cast Shears.....40%
Columbian Cutlery Co.:
Sheep, 1900 list.....30&10&5%
Grass .....50&10%
Horse or Mule.....50&10%
W. H. Compton Shear Co.:
Japan Handles, Nickel Blades, 60&10&5%
Full Nickel.....50&10&5%
Tailors' 30%
J. Wiss & Sons Co.:
Best Quality Jap'd.....60&10%
Best Quality Nickeled.....50&10%
Tailors' 25%

Tinners' Snips—

Steel Blades.....20&5@20&10%
Steel Laid Blades.....50&10%
Acme Cast Snips.....40%
W. H. Compton Shear Co., Forged Steel Handles.....35%
Jennings & Griffin Mfg. Co.'s 6½ to 10 in.....33⅓&7½%
Niagara Snips.....40%
P., S. & W. Forged Handles 25%
Forged Handles, Steel Blades, Samson .....40@40&5%
Triumph Stove Pipe, doz.....$6.00
J. Wiss & Sons Co.:
Wiss Forged Steel.....25%

Pruning Shears—

Columbian Cutlery Co.:
Hedge, Wilcut Brand.....60&10%
Lawn and Border, Wilcut Brand, 60&10%
W. H. Compton Shear Co., Dropped Forged Steel.....35%
Cronk's Hand Shears.....33⅓%
Cronk's Wood Handle Shears....33⅓%
Disston's Combined Pruning Hook and Saw, ⅌ doz, $18.00.....25%
Disston's Pruning Hook only, ⅌ doz., $12.00.....25%
J. T. Henry Mfg. Co.:
Pruning Shears, all grades.....40%
P., S. & W. Co.....40%
Seymour Smith & Son's:
Hand Shears 70%
Standard Tree Pruners.....75&10%
Wood Handle Pruning Shears....40%

Sheaves— Sliding Door—

Reading 40%
R. & E. list.....15%

Sliding Shutter—

Reading list.....40%
R. & E. list.....15%

Shells—Empty—

Brass Shells, Empty:
Climax, 10 and 12 gauge.....60&5%
Club, Rival, 65&5%; First Quality, 60&5%

Paper Shells, Empty:
New Rapid, 10, 12, 16 and 20 gauge, 25&10%
Climax, 10 and 12 gauge; Arrow, 10, 12, 16 and 20 gauge; Leader grade .....25&5%
New Club, 10 and 12 gauge, Rival grade 25%
New Climax, Defiance, 10, 12, 14, 16 and 20 gauge; Climax, 14, 16 and 20 gauge.....20%
Nitro Club, 10, 12, 16 and 20 gauge; New Club, 14, 16 and 20 gauge; Repeater Grade.....20%

Shells, Loaded—

Loaded with Black Powder..40%
Loaded with Smokeless Powder, medium grade.....40&5%
Loaded with Smokeless Powder, high grade.....40&10&10%

Union Metallic Cartridge Co.:
New Club, Black Powders.....40%
Nitro Club, Smokeless Powders.40&5%
Arrow, Smokeless Powders.40&10&10%
Winchester:
Smokeless Repeater Grade.....40&5%
Smokeless Leader Grade...40&10&10%
Black Powder.....40%

Shingles, Metal— Per Sq.

Wheeling Corrugating Co.:	Painted.	Galv.
Dixie, 14 x 20 in.	$4.20	$5.20
Dixie, 10 x 14 in.	4.40	5.60
Dixie, 7 x 10 in.	5.40	6.85

Shoes, Horse, Mule, &c.—

F.o.b. Pittsburgh:
Iron .....per keg. $4.10
Steel .....per keg. $3.85
Burden's, all sizes.....⅌ keg $3.90

Shot—

	25-lb. bag.
Drop, up to B	$1.70
Drop, B and larger	1.95
Buck	1.95
Chilled	1.85
Dust	2.30

Shovels and Spades—

Association List..40&7½%@40&10%
Avery Stamping Co.....40%

Snow Shovels—

Long Handle.....$2.50@$2.75
Wood and Malt, D Handle, $2.65@$2.90

Sieves and Sifters—

Hunter's Imitation, gro.....$9.50
Hunter's Genuine, per gro..$12.00

Sieves, Seamless Metallic

	Per dozen.			
Mesh	1½	16	18	20
Iron Wire....	$1.05	1.05	1.10	1.20
Tinned Wire..	$1.15	1.15	1.20	1.30

Sieves, Wooden Rim—

Nested, 10, 11 and 12 Inch.
Mesh 18, Nested....doz. $0.90@0.95
Mesh 20, Nested....doz. $1.00@1.05
Mesh 24, Nested....doz. $1.30@1.40

Sinks, Cast Iron—

Painted, Standard list:
12 x 12 to 22 x 36 in.....60%
20 x 24 to 24 x 50 in.....50%
24 x 60 to 24 x 120 in.....30%
Barnes' low list, all sizes up to 20 x 40, 60%; larger sizes.....55%
NOTE.—There is not entire uniformity in lists used by jobbers.

Steel—

Steel Sinks, L. & G. list.....60%

Skeins, Wagon—

Cast Iron.....70@70&10%
Steel .....35@40%

Slates, School—

Factory Shipments.
"D" Slates.....50@50&10%
Eureka, Unexcelled Noiseless.. 60&7 tens.
Victor A, Noiseless.60&4 tens &5%

Sleds—

Little Giant Folding, ⅌ doz.....$12.00

Snaps, Harness—

German .....40@40&10%
Covert Mfg. Co.:
Polo, King.....25&10%
High Grade, Covert, Trojan..... 30&10&10%
Yankee, Queen, Yankee Roller..... 30&10%

Snaths—

Grass Scythe.....50@50&5%

Spoons and Forks—

Silver Plated—

Good Quality.....50&10@60&5%
Cheap .....60@60&10%
International Silver Co:
1847 Rogers Bros.....40&10%
Rogers & Bro., William Rogers' Eagle Brand.....50&10%
Anchor, Rogers Brand.....60%
Wm. Rogers & Son.....60&10%

Miscellaneous

German Silver.....60@60&5%

Tinned Iron—

Teas .....per gro. 50@55¢
Tables .....per gro. $0.90@$1.00

Springs— Door—

Bardsley's Spring and Check.....33⅓%
Chicago (Coil).....40&10%
Pullman Door (Coil), ⅌ gro.....$10.00
Pullman Gate.....10%
Reliance (Coil).....40&10%

Carriage, Wagon, &c.—

	Per 100 lb.
1¼ in. and Wider:	
Black	$4.75@$5.00
Half Bright	$4.75@$5.00
Bright	$5.25@$5.50

Painted Seat Springs:
1½ x 2 x 26....per pair. 45@47¢
1½ x 3 x 28....per pair. 68@71¢

Sprinklers, Lawn—

Enterprise .....25@30%
Hero Fruit Jar Co., ⅌ doz.....$4.50
Philadelphia No. 1, ⅌ doz, $12; No. 2, $15; No. 3, $20.....30%

Squares—

Nickel plated.. } *New List, See*
Steel and Iron. } *Trade Report.*
Rosewood Hdl. Try Square and T-Bevels .....60&10&10&70%
Iron Hdl. Try Squares and T-Bevels .....40&10@40&10&10%
Disston's Try Squares and Bevels, 60&10%

Squeezers, Lemon

Wood, Porcelain Lined:
Cheap .....doz. $1.00
Good Grade.....doz. $1.25
Tinned Iron.....doz. $0.75@1.00
Iron, Porcelain Lined...doz. $1.75
Victor, ⅌ gro.....$9.00

Staples—

Barbed Blind.....85&5@85&10%
Electricians' .....80&10&10@85%
Fence Staples, Polished, $1.80; Galvanized $2.10
Poultry Netting Staples..... per lb. 3¼@3½¢

Steels, Butchers'—

Dick's 30%
Foster Bros.'.....33⅓%
L. & I. J. White Co.....30%

Steelyards— .....30@30&10%

Stocks and Dies—

Blacksmiths' .....50@50&10%
Curtis Rev'ble Ratchet Die Stock..25%
Derby Screw Plates.....25%
Green River.....25%
Lightning Screw Plate.....25%
Little Giant.....25%
Reece's New Screw Plate.....25%

Stoners, Cherry—

Enterprise .....25@30%

Stones, Axe—

Pike Mfg. Co., Axe Stones (all kinds) 33⅓%

Glass Cutters' Stones—

Pike Mfg. Co., Glass Cutters' Stones and Supplies.....40%

Stones, Oil, &c.—

Pike Mfg. Co., 1907 list: ₱ lb
Arkansas St., No. 1, 3 to 5½ in.$2.80
Arkansas St., No. 1, 5½ to 8 in.$3.50
Arkansas Slips No. 1.....$4.00
Lily White Washita, 4 to 8 in.60¢
Rosy Red Washita, 4 to 8 in..60¢
Washita St., Extra, 4 to 8 in..50¢
Washita St., No. 1, 4 to 8 in..40¢
Washita St., No. 2, 4 to 8 in..25¢
Lily White Slips.....90¢
Rosy Red Slips.....90¢
Washita Slips, Extra.....80¢
Washita Slips, No. 1.....70¢
Washita Slips, No. 2.....40¢
India Oil Stones (entire list)...33⅓%
Quickcut Emery and Corundum Oil Stone, Double Grit.....40%
Quickcut Emery and Corundum Axe Stone, Double Grit.....33⅓%
Quickcut Emery Rubbing Bricks..40%
Hindostan No. 1, R'g'lar. ₱ lb 8¢
Hindostan No. 1, Small..₱ lb 10¢
Turkey Oil Stones, Extra, 5 to 8 in.....₱ lb 80¢
Queer Creek Stones, 4 to 8 in.20¢
Queer Creek Slips.....40¢
Sand Stone..... 6¢

Scythe Stones—

Pike Mfg. Co., 1907 list:
Black Diamond S. S..₱ gro, $12.00
Lamoille S. S.....₱ gro, $11.00
White Mountain S. S.₱ gro. $9.50
Green Mountain S. S.₱ gro. $7.00
Extra Indian Pond S.S.₱ gro. $8.00
No. 1 Indian Pond S.S.₱ gro, $7.50
No. 2 Indian Pond S.S.₱ gro, $5.00
Leader Red End S. S.₱ gro. $5.00
Quick Cut Emery....₱ gro. $10.00
Pure Corundum.....₱ gro. $18.00
Crescent $7.00
Emery Scythe Rifles, 2 Coat. $8.80
Emery Scythe Rifles, 3 Coat.$11.00
Emery Scythe Rifles, 4 Coat.$13.20
Balance of 1907 list 33¼%.
Lectro (Artificial), ₱ gro., $12.00.33⅓% $12.00 .....33⅓%
Lightning (Artificial), ₱ gro. $18.00 .....33⅓%

Stoppers, Bottle—

Victor Bottle Stoppers.....₱ gro. $9.00

Stops— Bench—

Millers Falls.....15&10%
Morrill's, ₱ doz., No. 1, $10.00....50%
Morrill's, No. 2, $12.50.....50%
Seymour Smith & Son's.....60%

Door—

Chapin-Stephens Co.....50@50&10%

Plane—

Chapin-Stevens Co.....20%

Straps— Box—

Acme Embossed, case lots..20&10&10%
Cary's Universal, case lots...20&10&10%

Stroppers, Razor—

Pullman Safety Razor Blade, doz.$8.50

Stuffers, Sausage—

Enterprise Mfg. Co., Stuffers and Lard Presses.....25@25&7½%
P., S. & W. Co.....40&10&5%

Swings, Lawn—

Myers' Low Down Roller.....$6.25

Tacks, Finishing Nails, &c.

American Carpet Tacks.90&25@—%
American Cut Tacks..90&25@—%
Swedes' Cut Tacks.L..90&30@—%
Swedes' Upholsterers'.90&35@—%
Gimp Tacks.....90&35@—%
Lace Tacks.....90&35@—%
Trimmers' Tacks.....90&30@—%
Looking Glass Tacks.....65@—%
Bill Posters' and Railroad Tacks, 90&40@—%
Hungarian Nails.....80@—%
Finishing Nails.....70@—%
Trunk and Clout Nails.75&5@—%
NOTE.—The above prices are for Straight Weights
See also Nails, Wire.

Double Pointed—

Double Pointed Tacks, 90&4tens@90&5tens%

Tapes, Measuring—

American Asses' Skin....50@—%
Patent Leather.....25@30&5%
Steel .....33⅓&5%
Chesterman's .....25@25&5%
Keuffel & Esser Co.:
Favorite, Ass Skin.....40&10@50%
Favorite, Duck and Leather.....25&5@25&10%
Metallic and Steel, lower list, 35@35&5%; Pocket, 35@35&5%.

Lufkins:
Asses' Skin.....40&10@50%
Metallic .....30@30&5%
Patent Bend, Leather...25&5@25&10%
Pocket .....40@40&5%
Steel .....33⅓@35%
Wiebusch & Hilger:
Chesterman's Metallic, No. 34L, etc. 25%
Chesterman's Steel, No. 1038L, etc. 35%

Teeth, Harrow—

Steel Harrow Teeth, plain or headed, ⅝-inch and larger per 100 lb.....$2.55@$2.80

Thermometers—

Tin Case, Cabinet, Flange, Dairy, &c.....30@35%

Ties, Bale—Steel Wire—

Single Loop.....82½&10%
Monitor, Cross Head, &c.70&2½%

Tinware—

Stamped, Japanned and Pieced, sold very generally at net prices.

Tops, Chimney—

Iwan Volcano Chimney Tops.....55%

Tools—Coopers'—

L. & I. J. White.....20@20&5%

Ice Tools—

Gifford-Wood Co.....15%

Saw—

Atkins' Cross Cut Saw Tools.....35%
Simond's Improved.....33⅓%
Simonds' Crescent.....30%

Ship—

L. & I. J. White.....25%

Torches—

Hammers, Engine, ₱ doz.....$4.50

Traps—Fly—

Balloon, Globe or Acme, doz., $1.15@$1.25; gro.....$11.50@12.00
Harper, Champion or Paragon, doz., $1.25@1.40; gro.$13.00@13.50

Game—

Imitation Oneida.....75@10%
Newhouse .....50&5%
Hawley & Norton.....65&10%
Victor .....75@75&10%
Oneida Community Jump.....70&5%
Stop Thief.....60%
Tree Trap.....60%
Hector .....75@75&5%

Mouse and Rat—

Mouse, Wood, Choker, doz. holes, 12¢
Mouse, Round or Square Wire, doz.85@90¢

Trowels—

Disston Brick and Pointing.....25%
Disston Plastering.....20%
Disston "Standard Brand" and Garden Trowels.....30%
Kohler's Steel Garden Trowels, ₱ gro., 5 in., $4.80; 6 in., $6.00.
Never-Break, Forged Steel Garden Trowels, in 1 doz. boxes, ₱ gro. $6.50
Wm. Rose & Bros., Bricklayers' and Plasterers'.....25&5%
Woodrough & McFarlin, Plastering.25%

Trucks, Warehouse, &c.—

McKinney Trucks.....each, net $10.00

Tubs, Wash—

Net, per gross.

	No. 0	1	2	3
Galvanized..	*$39.00*	*48.00*	*55.00*	*62.00*

Twine, Miscellaneous—

Flax Twine:
No. 9, ¼ and ½-lb. Balls .21@23¢
No. 12, ¼ and ½-lb. Balls .19@21¢
No. 18, ¼ and ½-lb. Balls .16@18¢
No. 24, ¼ and ½ -lb. Balls. 15½@17½¢
No. 36, ¼ and ½-lb. Balls. 15@17¢
Cotton Mops, 6, 9, 12 and 15 lb. to doz.....8½@21¢
Cotton Wrapping, 5 Balls to lb., according to quality....12@23¢
American 2-Ply Hemp, ¼ and ½-lb. Balls.....15½@16¢
American 3-Ply Hemp, 1-lb Balls .....15½@16¢
India, 2-Ply Hemp, 1½-lb. Balls, Balls (Spring Twine)...7½@9¢
India 3-Ply Hemp, 1-lb. Balls 7¼@9¢
India 3-Ply Hemp, 1½-lb. Balls, 7@8½¢
2, 3, 4 and 5-Ply Jute, 1½-lb. Balls .....9@11¢
No. 264 Mattress, ¼ and ½ lb. Balls, according to quality, 30@60¢
Wool, 3 to 6 ply....B 6¢; A 7½¢

Vises—

Solid Box.....60@60&5%

Parallel—

Fisher & Norris Double Screw Leg, each, Nos. 2, $10.50; 3, $16.00; 4, $20.50; 5, $27.00; 6, $32.00.....20%
Fisher-Brooks Bench and Woodworkers' Vises, No. 0, $3.80; No. 1, $5.90; No. 2, $8.25; No. 3, $10.50; No. 4, $13.50.....40%
Merrill's 25%
Millers Falls Oval Slide Pattern.60&10%
Parker's:
Victor, 20@25%; Regulars....20@25%
Vulcan's .....40@45%
Combination Pipe.....55@60%
Prentiss Vise Co.:
Patent, Bicycle, Shepard, Gipsy, Adj. Column, Lewis Adj. Jaw..25%
Rapid Transit, Heavy Chipping..30%
Bull Dog, Anchor Line, Yankee Quick Lever, Lewis Solid Jaw, Eclipse Wrench Attachment...40%
Monarch 45%
Vise Jaw Caps 10%
Pullman Automatic Bench, ₱ doz., No. 1, $7.50; No. 2.....$9.50

Pipe—

Curtis & Curtis Malleable.....25%
Parker's Combination:
87 Series, 60%; 187 Series, 60&5%; No. 870, 40%.
Prentiss Vise Co.:
Blake Combination, Prentiss Combination, Prentiss.....60%
Malleable; Monarch Combination 65%
Rex Combination.....70%
Peerless Pipe Grip.....25%

Saw Filers

Disston's D 3 Clamp and Guide, ₱ doz., $24.00, 30%; Clamps.....30%
Reading .....50&10%

Wood Workers—

Prentiss Cabinet Makers'.....40%
Wyman & Gordon's Quick Action, 6 in., $6.00; 9 in., $7.00; 14 in., $8.00.

Wads—*Price per M.*

B. E., 11 up.....60¢
B. E., 9 and 10.....70¢
B. E., 8.....80¢
B. E., 7.....80¢
P. E., 11 up.....$1.00
P. E., 9 and 10.....1.25
P. E., 8.....1.50
P. E., 7.....1.50
Ely's B. E., 11 and larger.$1.70@1.75
Ely's P. E., 12 to 20....$3.00@3.25
Dis. 15%

Ware, Hollow—Cast Iron, Hollow—

Stove Hollow Ware:
Enameled .....45&10%
Ground .....50&5%
Plain or Unground.....60%
Country Hollow Ware, per 100 lbs .....$2.75@$3.00
White Enameled Ware:
Maslin Kettles.....65&10%
Covered Wares:
Tinned and Turned.....35&10%
Enameled .....45&10%
See also *Pots, Glue.*

Enameled—

Agate Nickel Steel Ware.....33⅓%
Ei-an-ge .....60&10%
Iron Clad Ware.....70&10%
Lava and Volcanic, Enameled..40&10%

Tea Kettles—

Galvanized Tea Kettles:

Inch	6	7	8	9
Each	45¢	50¢	55¢	65¢

Steel Hollow Ware—

Avery Stamping Co.:
Never-Break Spiders and Griddles .....65&10%
Steel Kettles, Maslins Scotch Bowls, Tin'd.....60%
Steel Stew Pans, Stew Pots, etc., Porcelained 50%
Cleveland Stamping & Tool Co.:
Solid Steel Spiders and Griddles .....65&5%
Solid Steel Kettles.....60&5%

Warmers, Foot—

Pike Mfg. Co., Soapstone....40@40&10%

Washboards—

No. ₱ doz.
800—Brass King, Single Surface, Open Back.....$3.00
801—Brass King, Single Surface, Open Back.....$2.50
802—Brass Junior, Single Surface, Open Back.....$2.25
862—White Hen, Spiral Crimp Glass $3.15
964—Royal Blue Enamel Single Surface, Ventilated Back.....$3.25
172—Our Best, Single Zinc, Soap Drainer $3.25
722—Soap Saver, Single Zinc, Iron Top $3.35
100—Northern Queen, Single Zinc, Perforated, Open Back.....$3.00
134—Universal, Single Zinc, Extra Family Size, Ventilated Back....$2.80
710—Regal, Single Zinc, Extra Family Size, Ventilated Back.....$2.50
760—Banner Globe, Single Zinc, Ventilated Back.....$2.25
57—Peerless, Double Zinc, Spring Protector $3.70
56—Red Cross, Double Zinc, Swing Protector $3.60
17—North Star, Solid Zinc, Swing Protector $3.60
797—Jewel, Single Zinc, Pail Size.$1.25

Washers—Leather, Axle—

Solid .....90@90&10%
Patent .....90@90&5%

Coil:	*⅞*	*1*	*1⅛*	*1¼ inch.*
	9¢	*10¢*	*11¢*	*11¢ per box*

Iron or Steel—

Size bolt.... 5-16 ⅜ ½ ⅝ ¾
Washers....$4.90 4.00 2.70 2.50 2.30
The above prices are based on $6.50 off list.
In lots less than one keg add ½¢ per lb.; 5-lb. boxes add ½¢ to list.
Avery Stamping Co.:
Standard, in 200 lb kegs, $6.00 ₱ 100 lb. disct.; in 100 lb kegs add 10¢ net ₱ 100 lb; in 5 or 10 lb boxes, add 50¢ net ₱ 100 lb; in 1 lb boxes, add $1.00 net ₱ 100 lb.

Cast Washers—

Over ½-inch, barrel lots, per lb.1½@1¾¢

Wedges—

Oil Finish.....lb., 2¼@2¾¢

Weights—Hitching—

Covert Mfg. Co.....25%

Sash—

Eastern market.....$25.00@$26.00
Middle West.....$24.00@$26.00

Wheels, Corundum and Emery—

Pike Mfg. Co., Corundum, 65%; Emery 75%

Well—

8-in., $2.00; 10-in., $2.30; 12-in., $3.00; 14-in., $4.45.

Wire and Wire Goods—

Market and Stone Wire in Bundles—

Bright and Annealed:
9 and coarser.....80%
10 to 18.....80&10%
19 to 26.....80&10&2½%
27 to 36.....80&5%
Galvanized:
9 and coarser.....75&10%
10 to 16.....75&10%
17 to 26.....72½&10%
27 to 36.....72½%
Coppered:
9 and coarser.....75&10%
10 to 26.....75&10%
27 to 36.....70&10&5%
Tinned:
6 to 18.....75&10&10%
Brass.....15¾¢ lb., base
Copper .....14½¢ lb., base
Cast Steel Wire.....50%

Spooled Wire—

Annealed and Tinned, 70&10&10&10%
Brass and Copper...60&10&10&10%
Retailers' Assortments, per box, $1.90@$2.10

Bright Wire Goods—

Steel Wire Goods. 90&20@90&20&10%
Brass Wire Goods, 90&20@90&20&10%
Brass Cup and Shoulder Hooks, 85%

Wire Cloth and Netting—

Galvanized Poultry Netting, 80&10&5@80&10&10%
Screen Cloth, 12 Mesh, Per 100 sq. ft.; Painted, $1.30; Galvanized, $1.95; 14 Mesh, Bronze $6.50.
Standard Galv. Hardware Grade: 100 ft. rolls, 2½ to 48 in. wide, Per 100 sq. ft.
Nos. 2, 2½ and 3 Mesh....$2.50
Nos. 4 and 5 Mesh.....$2.75
No. 6 Mesh.....$3.00
Nos. 7 and 8 Mesh.....$3.50

Wire, Barb—See *Trade Report*

Wrenches—

Agricultural .....75&10@80&5%
Alligator or Crocodile.70&10@75%
Baxter Pattern S Wrenches, 70&5@70&10%
Drop Forged S.....45@45&5%
Acme .....60&10%
Alligator Pattern, 70%; Bull Dog..70%
Bemis & Call's:
Adjustable S, 40&5%; Adjustable S Pipe, 40&5%; Briggs Pattern, 40%; Combination Bright, 50%.
Steel Handle Nut.....50&5%
Combination Black.....50&5%
Merrick Pattern.....50&5%
Coes' Genuine Knife Hdl...40&10&5&5%
Coes' Genuine Steel Hdl...40&10&5&5%
Coes' Genuine Key Model..40&10&5&5%
Coes' Genuine Hammer Handle..... 40&10&5&5%
Coes' "Mechanics'"...40&10&10&5&5%
Hercules 70%
W. & B. Machinist:
Case lots.....50&10%
Less than case lots.....50%
W. & B. Railroad Special:
Case lots.....50%
Less than case lots.....40&10&5%
Solid Handles, P., S. & W..50&10%; full cases.....50&10&5%
Vulcan and Acrippa Chain.....50%
Wizard Adjustable Ratchet.....50%

Can and Jar—

Benf. P. Forbes Triumph, doz., $0.75; Triumph Syrup Cap, gro. $4.00

Wrought Goods—

Staple Hooks, &c., list March 11, '02.....90@—%

Zinc—

(Cask lots, 600 lb., at mill.)
Sheet.....per 100 lb., $8.00